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

Form 10-K

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

For the year ended December 31, 2020

or

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

Commission file number: 001-38211

ROKU, INC.
(Exact name of Registrant as specified in its charter)

Delaware	4841	26-2087865
(State or other jurisdiction of incorporation or organization)	*(Primary standard industrial code number)*	*(I.R.S. employer identification no.)*

1155 Coleman Avenue
San Jose, California 95110

(408) 556-9040

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

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, $0.0001 par value	ROKU	The Nasdaq Global Select Market

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 the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer	☑	Accelerated Filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging Growth Company	☐		

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 ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☑

As of June 30, 2020, the aggregate market value of voting stock held by non-affiliates of the registrant, based upon the closing sales price for the registrant's common stock, as reported in the Nasdaq Global Select Market System, was $12,291,076,562. Shares of common stock beneficially owned by each executive officer and director of the Registrant and by each person known by the Registrant to beneficially own 10% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for any other purpose.

As of January 31, 2021, the registrant had 111,081,169 shares of Class A common stock, $0.0001 par value per share and 17,340,776 shares of Class B common stock, $0.0001 par value per share.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates by reference certain information from the Registrant's definitive proxy statement (the "2020 Proxy Statement") for the 2021 Annual Meeting of Stockholders. The 2020 Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2020.

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NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K ("Report") contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended ("Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended ("Exchange Act"), about us and our industry that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this report, including statements regarding our future results of operations and financial condition, business strategy and plans and objectives of management for future operations, are forward-looking statements. For example, statements in this Form 10-K regarding the potential future impact of the COVID-19 pandemic on the Company's business and results of operations are forward-looking statements. In some cases, forward-looking statements may be identified by words such as "anticipate," "believe," "continue," "could," "design," "estimate," "expect," "intend," "may," "plan," "potentially," "predict," "project," "should," "will" or the negative of these terms or other similar expressions.

Forward-looking statements are based on our management's beliefs and assumptions and on information currently available. These forward-looking statements are subject to a number of known and unknown risks, uncertainties and assumptions, including risks described in the section titled "Risk Factors" and elsewhere in this Form 10-K, regarding, among other things:

- *our financial performance, including our revenue, cost of revenue, operating expenses and our ability to attain and sustain profitability;*
- *the impact of the COVID-19 pandemic on our business, operations, and the markets and communities in which we and our advertisers, partners, manufacturers, suppliers and users operate;*
- *our ability to attract and retain users and increase streaming hours;*
- *our ability to attract and retain advertisers;*
- *our ability to attract and retain TV brands and service operators to license and deploy our technology;*
- *our ability to acquire rights to distribute popular content on our platform on favorable terms, or at all, including the renewals of our existing agreements with content publishers;*
- *changes in consumer viewing habits and the growth of TV streaming;*
- *the growth of our relevant markets, including the growth in advertising spend on TV streaming platforms, and our ability to successfully grow our business in those markets;*
- *our ability to adapt to changing market conditions and technological developments, including developing integrations with our platform partners;*
- *our ability to develop and launch new streaming products and provide ancillary services and support;*
- *our ability to integrate the business and operations of dataxu, Inc., a demand-side platform ("DSP") company that we acquired in 2019;*
- *our ability to compete effectively with existing competitors and new market entrants;*
- *our ability to successfully manage domestic and international expansion;*
- *our ability to attract and retain qualified employees and key personnel;*
- *our abilities to address potential and actual security breaches and system failures involving our products, systems and operations;*
- *our ability to maintain, protect and enhance our intellectual property; and*
- *our ability to comply with laws and regulations that currently apply or may become applicable to our business both in the United States and internationally, including compliance with the EU General Data Protection Regulation and the California Consumer Privacy Act.*

We caution you that the foregoing list may not contain all of the forward-looking statements made in this Annual Report on Form 10-K.

Other sections of this report may include additional factors that could harm our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for our management to predict all risk factors nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ from those contained in, or implied by, any forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. We cannot assure you that the events and circumstances reflected in the forward-looking statements will be achieved or occur. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this report or to conform these statements to actual results or to changes in our expectations. You should read this Annual Report on Form 10-K and the documents that we reference in this Annual Report on Form 10-K and have filed as exhibits to this report with the understanding that our actual future results, levels of activity, performance and achievements may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

Investors and others should note that we may announce material business and financial information to our investors using our investor relations website (ir.roku.com/investor-relations), SEC filings, webcasts, press releases, and conference calls. We use these mediums to communicate with investors and the general public about our company, our products and services, and other issues. It is possible that the information that we make available may be deemed to be material information. We therefore encourage investors, the media and others interested in our company to review the information that we post on our investor relations website.

Roku, the Roku logo and other trade names, trademarks or service marks of Roku appearing in this report are the property of Roku. Trade names, trademarks and service marks of other companies appearing in this report are the property of their respective holders.

PART I

Item 1: Business

Overview

Roku, Inc. ("Roku", "the Company", "we" or "us") is the leading TV streaming platform in the U.S. by hours streamed.

We pioneered streaming to the TV and were founded on the belief that all TV content will be streamed. The re-platforming of the TV ecosystem is underway and is creating more options for consumers, content publishers, advertisers and other industry participants. TV streaming is now mainstream and consumers are spending more time watching TV streaming services, with many 'cutting the cord' from legacy pay TV services entirely. Over the past several years, many of the biggest names in media have transitioned toward streaming offerings and similarly, advertisers looking to reach and engage with streaming audiences are increasingly taking advantage of the benefits inherent to the digital advertising capabilities of TV streaming platforms and are re-allocating their budgets accordingly. These trends continued to gain momentum in 2020 as consumers spent more time at home due to the COVID-19 pandemic.

Our Strategy

Our mission is to be the streaming platform that connects the entire TV ecosystem of viewers, content publishers and advertisers. Through our TV streaming platform, we are focused on connecting consumers to the entertainment they love, enabling content publishers to build and monetize large audiences, and providing advertisers with unique capabilities to engage consumers. Central to our platform is the Roku operating system (the "Roku OS"). The Roku OS is purpose built for TV and designed to run on low-cost hardware which allows us to manufacture and sell streaming players that are affordable. The Roku OS also powers Roku TV models that are manufactured and sold by our TV brand partners who license the Roku OS and leverage our smart TV hardware reference designs. Roku TV models and Roku streaming players enable consumers to access a wide selection of content by connecting their Roku device to our streaming platform via a home broadband network.

The features and functionality of our platform, powered by the Roku OS, enable us to address the needs of our consumers, content publishers, advertisers, Roku TV brand partners, and other partners. Consumers can discover and access a wide variety of streaming content, content publishers can reach our highly-engaged user base of over 50 million active accounts and utilize our billing services and data insight tools, advertisers can serve targeted and measurable ads to the TV viewers that they want to reach, Roku TV brand partners can build market share by offering high performance smart TVs in a range of sizes and price points, and retailers can offer customers Roku's highly-rated streaming devices on-line and in stores. We continue to invest significant resources to advance the Roku OS; to provide an industry-leading platform for our consumers, content publishers, and advertisers; and to extend Roku's advantage as the streaming decade continues.

Our Business Model

Three core areas of focus define our business model. First, we build scale by increasing our active accounts. Second, we increase engagement by growing the hours of content streamed through our platform. And third, we monetize the activities that consumers engage in through our platform. Furthermore, our business model is designed to fulfill the needs of the participants in the TV streaming ecosystem: consumers, content publishers, advertisers, TV OEMs, other device licensees and consumer electronics retailers.

Scale: Increasing the number of active accounts

We make TV streaming affordable by offering a lineup of stand-alone streaming players that connect to a user's TV. Furthermore, to enhance our users' experience and to provide a better audio experience we also offer our Roku Smart Soundbars and Roku Streambars, each with a streaming player built in that enables the soundbar to connect to our streaming platform, Roku wireless speakers that connect to Roku TV models, and our Roku Wireless Subwoofers. We launch new devices and provide updates via the Roku OS periodically to ensure they offer the highest performance at an affordable price.

We also partner with TV brands that manufacture and sell co-branded Roku TV models that integrate the Roku OS to enable basic TV functions and connect to our TV streaming platform. We have driven strong growth in our Roku TV licensing program. Using our reference designs results in relatively low hardware costs, enabling these TV brand licensees to manufacture and sell smart TVs that are competitively priced for consumers and that are automatically updated whenever we issue a Roku OS update.

We also license the Roku OS and our streaming player designs, as well as provide ongoing technology and support services, to certain international pay TV and telco service operators that distribute co-branded players to their subscribers in their markets.

Taken together, we offer consumers tremendous optionality and value when it comes to gaining access to the Roku platform, and combined with the exceptional user experience. We have been able to significantly scale our active account base over a multi-year period. In 2020, we added over 14 million active accounts, ending the year with 51.2 million active accounts.

Engagement: Growing streaming hours

We believe that offering users a wide range of content drives increased user engagement by delivering a better overall streaming experience. Streaming hours on our platform have grown from 37.8 billion hours in 2019 to 58.7 billion hours in 2020, as we have grown active accounts through the distribution of Roku streaming players and Roku TV models, and as our active accounts stream more hours per day, on average.

Through our streaming platform and our streaming devices, we make it easy and affordable for our users to watch their favorite TV shows and movies, as well as listen to streaming audio. Furthermore, we believe our platform offers users an incredible streaming experience through a user interface that is easy to use and navigate. From the Roku home screen, our users can easily find and access the 500,000+ free and paid movies and TV episodes including live TV, news, sports, hit movies, popular shows, and more that are available from the thousands of channels on our streaming platform. And Roku's powerful cross-channel search capabilities make it simple for our users to find the entertainment they're looking for. Users have the optionality to align their spend to their budget by choosing content that is available on an ad-supported, subscription, or transactional basis. Our direct relationship with our users provides us with detailed insights about our users and their behavior on our platform, including certain content they search for, the channels they install, the channels they watch, and certain content that they purchase or subscribe to on our platform. Our first party data enables us to develop actionable insights such as content recommendations to improve our users' experience.

We enable our content partners to publish streaming channels, quickly and easily, which makes us an attractive platform for content publishers to partner with as they seek to reach TV streaming, or over-the-top ("OTT"), users. Content publishers can deliver content directly to our large and relevant audiences and reach those users who no longer use or those who never used legacy pay TV or paid TV subscriptions. As consumers shift to TV streaming, content publishers that use our platform are able to reach these streaming audiences at scale and engage users directly.

The Roku Channel is our own streaming channel that drives user engagement on our platform by providing our users free, ad-supported access to a large library of third-party content that we directly license, in addition to content made available through The Roku Channel by our content publishers. In this way, The Roku Channel also is intended to help content publishers drive additional viewership and maximize the value of their content on our platform. The Roku Channel is available in the U.S., U.K. and Canada. In 2020, in the U.S., we added a line-up of more than 100 free live/linear channels on the Roku Channel and introduced a new Live TV Channel Guide, offering users a convenient way to discover and watch live TV.

Monetization: Growing our revenue and gross profit by monetizing user activity

We believe that running relevant display and digital ads enhances the user experience on our platform. We generate revenue by monetizing our users' engagement on our platform through a variety of services and capabilities, including video advertising in ad supported channels, sales of subscription services and other commerce transactions, brand sponsorship and promotions, and billing services. Each individual user on our platform creates multiple revenue opportunities for Roku, whether they're purchasing content, enjoying ad-supported content or simply opening the Roku home page. We measure monetization of our platform by calculating the average revenue per user ("ARPU"), which we believe represents the inherent value of our business model, and growth in gross profit. In 2020, ARPU (which we measure on a trailing twelve-month basis) increased from $23.14 to $28.76 and gross profit for the full year grew from $495.2 million to $808.2 million.

Our sophisticated and leading streaming platform enables advertisers, including content publishers, brands and agencies, to reach audiences that are no longer reachable or are increasingly unavailable through advertising on traditional TV. We make it easy for content publishers to distribute and monetize their streaming content through three primary business models: transaction video on demand (“TVOD”), subscription video on demand (“SVOD”), and advertising-supported video on demand (“AVOD”). Through our platform we are also able to assist content partners with billing services, including billing customers for in-channel purchases like a movie rental, managing subscriptions and customer invoices. Roku Pay, our platform billing solution, is a key platform capability that simplifies consumer subscription signups and drives purchase and retention for partners.

Content publishers also have access to our promotional and audience development tools to help them attract and retain viewers. Content publishers can use a variety of ad placements, including native display ads on the Roku home screen or a screen saver to drive channel downloads, promote a channel’s content, and direct traffic to their channels in order to drive subscriptions or movie and TV show consumption. We also sell branded channel buttons on streaming player and Roku TV remote controls that are intended to increase incremental usage of the channel by allowing users to launch straight into the channel from the home screen. Our analytics and reporting assist content publishers with analyzing viewership trends and metrics for specific titles. Using machine learning, we also can help content publishers target new audiences that are more likely to subscribe to their services.

The Roku Channel provides monetization for both our content partners and Roku through digital advertising. The Roku Channel provides our users with free access to over 50,000 titles, including hit Hollywood movies, TV episodes, news channels, and more and is a leading sources of advertising inventory. Through Premium Subscriptions within The Roku Channel, we resell ad-free premium content subscription services from providers such as Showtime, Starz, and Epix directly to our users. In addition, we have developed and implemented various features within The Roku Channel that can be used to recruit and retain subscribers for Premium Subscription. For example, we provide personalized content selection for users and integrated The Roku Channel into our billing services to enable one-click subscriptions.

Advertisers are able to use our platform to leverage our direct relationship with our users, as well as our advertising capabilities and user data and insights, to serve relevant, targeted advertisements. Advertisers on our platform also can measure both the effectiveness of the ads served and their return on investment. We offer engagement analytics such as ad impressions served, click-through rates, and video completion rates. We work with a wide variety of third-party measurement companies to measure the branding impact of the ads served and audience demographics, validate ad effectiveness, and quantify sales lift from advertising on our platform. Furthermore, we have relationships with third-party providers that focus on transactional or point of sale data, which enables our advertisers to compare the effectiveness of ads served on our platform to advertising on traditional TV. Additional promotional advertising opportunities include content sponsorships to give users the opportunity to experience a free movie or show and sponsored themes on our home screen. We also sell branded content rows within The Roku Channel.

In May 2020, we announced the rebranding of the OneView Ad Platform, a single platform leveraging TV identity data to manage advertising across OTT, desktop, and mobile campaigns. As consumers move to TV streaming, OneView provides advertisers with a toolset to scale their OTT advertising and marketers self-serve capabilities to optimize and measure effectiveness across screens. OneView integrates the reach, inventory, and capabilities of Roku advertising with the identity and attribution tools of demand-side platform dataxu, which the company acquired in November 2019.

International Markets

We believe that the value our business delivers to participants in the TV ecosystem in the U.S. — consumers, content publishers, advertisers, TV OEMs, other device licensees, and retailers — is also compelling in international markets. To date, we have brought the same business model to certain markets that has enabled us to develop the No. 1 TV streaming platform in the U.S. by hours streamed. In 2020, Roku TV was the No. 1 selling smart TV operating system in Canada. Also, in 2020, we launched in Brazil, first in partnership with AOC to bring the AOC Roku TV to consumers and then with the launch of Roku Express, our first streaming device in the country. In these newer markets, we will continue to focus on building scale, increasing engagement, and ultimately driving monetization.

Sales and Marketing

We engage in a wide variety of sales and marketing activities to continuously drive scale, engagement, and monetization and dedicate significant resources to this area. Our sales and marketing activities are primarily focused on building and expanding relationships with content publishers, advertisers, TV brands, retailers and service operators, and driving sales of our streaming players and audio products and Roku TV models to consumers through retail distribution channels.

We have dedicated business development teams that develop and maintain relationships, to promote and build awareness of the features and advantages of the Roku platform among content publishers, advertisers, TV brands, and service operators. Our data science team supports our sales and marketing efforts by analyzing data on our platform to increase effectiveness for our content publishers and advertisers as well as for our consumer marketing campaigns. We enter into distribution agreements with our content publishers and license their content through our dedicated content relationship management team. Our relationship with content publishers is typically client-direct. We secure direct access to publishers' video ad inventory as part of our distribution agreements and serve as an additional channel for content publishers to monetize their audience. These sales efforts are differentiated and complementary to that of our content publishers. Whereas our publishers typically sell on a cross-platform basis and feature their brand and content in their sale, we focus on delivering a large OTT audience across many channels at once. We sell advertising to a wide range of advertisers helping them reach their goals across numerous key performance indicators. Our sales teams and products are organized into six groups that specialize in the unique needs of each area: (i) agency holding companies and Fortune 500 brands, (ii) independent agency and mid-market clients, (iii) content publishers and entertainment brands, (iv) performance and direct to consumer brands, (v) international markets and (vi) local advertising.

We work with our Roku TV brand partners to assist in all phases of the development of Roku TV models, including development, planning, manufacturing and marketing. Similarly, we work with service operators on the planning and development of their co-branded players.

In the United States, the majority of our streaming players, audio products and Roku TV models are sold through traditional brick and mortar retailers, such as Best Buy, Target and Walmart, including their online sales platforms, and online retailers such as Amazon, and to a lesser extent our website. We also sell products internationally through distributors and to retailers. In the years ended December 31, 2020 and December 31, 2019, sales through Amazon, Best Buy and Walmart each accounted for more than 10% of our player segment revenue. These three retailers collectively accounted for 69% and 72% of our player segment revenue for the years ended December 31, 2020, and 2019, respectively. We support retailers with an experienced sales management team and work closely with these retailers to assist with in-store marketing and product mix forecasting. We intend to continue to invest significant resources in our sales and marketing efforts.

Seasonality

We have historically seen seasonality in our business related to advertising and streaming player sales. Our revenue and gross profit are traditionally strongest in the fourth quarter of each fiscal year and represent a high percentage of the total net revenue for such fiscal year due to higher consumer purchases and increased advertising during holiday seasons. Furthermore, a significant percentage of our player sales through retailers in the fourth quarter of the fiscal year are pursuant to committed sales agreements with retailers for which we recognize significant discounts in the average selling prices in the third quarter in an effort to grow our active accounts, which will reduce our player gross margin.

Research and Development

Our research and development model relies on a combination of in-house staff and out-sourced design and manufacturing partners to cost-effectively improve and enhance our platform, and to develop new players, audio products, TVs, features and functionality. We work closely with content publishers, advertisers, TV brands, and service operators to understand their current and future needs. We have designed a product development process that captures and integrates their feedback. In addition, we solicit user feedback in the development of new features and enhancements to the Roku platform.

We intend to continue to significantly invest in research and development to bring new devices to market and enhance our platform and capabilities.

Manufacturing

We outsource the manufacturing of our products to our contract manufacturers, using our design specifications. All of our products are manufactured by our contract manufacturers in the People's Republic of China, Southeast Asia and Brazil. Our contracts do not obligate them to supply products to us in any specific quantity or at any specific price. Our contract manufacturers procure components and assemble our products to demand forecast we establish based upon historical trends and analysis from our sales and product management functions. The contract manufacturers ship our products to our third-party warehouses in California, the United Kingdom and Brazil where they ship players directly to retailers, wholesale distributors and to end users.

Government Regulation

Our business and our devices and platform are subject to numerous domestic and foreign laws and regulations covering a wide variety of subject matters. These laws and regulations include general business regulations and laws, as well as regulations and laws specific to providers of Internet-delivered streaming services and Internet-connected devices. New laws and regulations in these areas may have an adverse effect on our business. The costs of compliance with these laws and regulations are substantial and are likely to increase in the future. Compliance with existing or future laws and regulations, including, but not limited to, those pertaining to internet and online services, data privacy and security, consumer protection, global trade, employee health and safety, and taxes, could have an adverse impact on our business in subsequent periods. If we fail to comply with these laws and regulations, we may be subject to significant liabilities and other penalties.

In particular, our business is subject to foreign and domestic laws and regulations applicable to companies conducting business using the Internet. Both domestic and foreign jurisdictions vary widely as to how, or whether, existing laws governing areas such as privacy and data security, online platform liability, consumer protection, payment processing or sales and other taxes and intellectual property apply to the Internet and e-commerce, and these laws are continually evolving. Moreover, the laws governing these areas, as well as those governing electronic contracts and Internet content and access restrictions, among other areas, are rapidly evolving. The laws in these areas are unsettled and future developments are unpredictable. Laws that lead to more stringent regulation of companies engaging in businesses using the Internet may have a negative impact on our business.

In the United States, the regulatory framework for privacy and security issues is rapidly evolving. State and federal consumer protection regulators generally exercise oversight of consumer privacy protections and the security of online services. For example, California recently adopted the California Consumer Privacy Act of 2018 ("CCPA"), which gives California residents expanded rights to access and require deletion of their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA has prompted a number of proposals for new federal and state privacy legislation. State laws may also impose obligations on us in the event of a security breach or inadvertent disclosure of personal information. Foreign jurisdictions impose different, and sometimes more stringent, consumer and privacy protections, including the European Union ("EU") General Data Protection Regulation ("GDPR"). The GDPR broadly regulates the processing of personal information about individuals in the EU and includes significant penalties for non-compliance. Such consumer privacy laws are constantly changing and may become more diverse and restrictive over time, challenging our ability to fully comply with these laws in all jurisdictions. Privacy laws also may limit the ability of advertisers to fully utilize our platform, which could have a negative impact on our business.

Tax regulations in domestic and international jurisdictions where we do not currently collect state or local taxes may subject us to the obligation to collect and remit such taxes, to additional taxes or to requirements intended to assist jurisdictions with their tax collection efforts. New legislation or regulation, the application of laws from jurisdictions whose laws do not currently apply to our business or the application of existing laws and regulations to the Internet and e-commerce generally could result in significant additional taxes on our business. An increasing number of jurisdictions are considering or have adopted laws or administrative practices that impose new tax measures, including revenue-based taxes, targeting online commerce and the remote selling of goods and services. These include new obligations to collect sales, consumption, value added, or other taxes on online marketplaces and remote sellers, or other requirements that may result in liability for third-party obligations. For example, Maryland recently passed legislation establishing a tax on certain advertising activities and in certain jurisdictions outside of the United States, including member states of the EU have proposed or enacted taxes on online advertising and marketplace service revenues. Our results of operations and cash flows could be adversely affected by additional taxes of this nature imposed on us prospectively or retroactively or additional taxes or penalties resulting from the failure to comply with any collection obligations. The continued growth and demand for e-commerce is likely to result in more laws and regulations that impose additional compliance burdens on e-commerce companies, and any such developments could harm our business.

In addition, the Internet is a vital component of our business and also is subject to a variety of laws and regulations in jurisdictions throughout the world. We expect to rely on the historical openness and accessibility of the Internet to conduct our business, and government regulations that impede or fail to preserve the open Internet could harm our business. To the extent regulatory agencies adopt rules that allow network operators to restrict the flow of content over the Internet, such operators may seek to extract fees from us or our content publishers to deliver our traffic or may otherwise engage in blocking, throttling or other discriminatory practices with respect to our traffic, which could adversely impact our business.

Our content publishers also are subject to a wide range of government regulations that may vary by jurisdiction. Because our business depends on the availability of third-party content delivered over the Internet, increased regulation of our content publishers or changes in laws or regulations governing Internet retransmission of third-party content could increase our expenses and adversely affect our business and the attractiveness of our platform.

Intellectual Property

Our success depends in part upon our ability to protect our core technology and intellectual property. To establish and protect our proprietary rights, we rely on a combination of intellectual property rights, including patents, trademarks, copyrights, trade secret laws, license agreements, confidentiality procedures, employee disclosure and invention assignment agreements and other contractual rights.

As of December 31, 2020, we have approximately 195 issued patents and 200 pending applications in the United States and foreign countries. We also license technology from third parties when we believe it will facilitate our product offerings or business.

Competition

The TV streaming industry is highly competitive and, as it continues to evolve, we will continue to face aggressive competition in every aspect of our business. We compete with much larger companies which have resources and brand recognition that pose significant competitive challenges. In the face of this competition, we believe our success depends on our ability to acquire users by delivering high quality streaming devices at competitive prices, partnering with Roku TV brands to bring co-branded smart TVs to market, and developing and monetizing our streaming platform with compelling content, promotional services and advertising.

Our competitors include:

- legacy pay TV service operators;
- companies that offer TV streaming devices that compete with our streaming players and Roku TV models and companies that license their operating systems for integration into smart TVs and other streaming products;
- TV brands that offer their own TV streaming solutions within their TVs and well as other devices like game consoles, DVD players, Blu-ray players and set-top boxes that leverage their own operating systems;
- mobile streaming platforms, that enable users to stream content on phones and tablets;
- companies that offer advertisers the opportunity to reach consumers on other content and advertising mediums; and
- companies that operate in the same locations as our offices that may be better able attract and retain top talent in engineering, research and development, sales and marketing, operations and other organizations.

As the TV streaming market continues to develop, we may become subject to additional competition as we introduce or develop new products and services, as our existing products and services evolve, or as other companies introduce competing products and services.

Human Capital Management

As the leading TV streaming platform in the U.S. by hours streamed, we believe our success depends on our culture and our ability to attract and retain our employees. As of December 31, 2020, we employed approximately 1,925 full-time employees located in nine countries. Only our employees in Brazil are represented by a labor union with respect to their employment. The majority of our employees currently are working remotely as a result of the COVID-19 pandemic.

Culture

We want our employees to be proud to work at Roku. Our entrepreneurial, execution focused culture focuses on recruiting talented individuals, encouraging teamwork and expecting our employees to perform at a high level. Across Roku, teams are expected to communicate clearly, in real time. Because our employees are trusted and encouraged to make decisions, leadership communicates plans, milestones and strategic context broadly, and employees are trusted to maintain the confidentiality of such information. Our employees are encouraged to use our broad talent base for diverse points of view when making decisions.

Diversity and Inclusion

Roku is committed to being a diverse and inclusive organization. We follow through on this commitment through our annual pay equity analysis designed to ensure we pay fairly and equitably across gender and ethnicity, year over year; our hiring and management trainings that incorporate topics on mitigating unconscious bias; and by having diverse interviews panel that limit questions to those that are legally compliant and objectively tied to applicable job openings.

During 2020, we furthered our commitment to diversity and inclusion by promoting a new Vice President of Inclusion Strategy and Talent Development who is building a growing team that is focusing on priorities in four key areas: Inclusive Employee Experiences, Inclusive Recruiting, Inclusive Communities & Social Impact, and Inclusive Customer Advocacy.

Inclusive Employee Experiences: Among other initiatives, we have launched an Employee Resource Group (ERG) Program and are currently developing seven ERGs. We also launched a series of educational employee-led dialogues that cover various topics of diversity ranging from ethnic diversity to neurodiversity and are providing diversity and inclusion training and curriculum in the areas of bias, leading diverse teams, and sourcing diverse talent.

Inclusive Recruiting: Every member of our recruiting team is trained on how to source, engage, and recruit qualified diverse candidates. In fact, all recruiters are equipped to discuss a diverse hiring strategy with every hiring manager to ensure we continue to widen the candidate pipeline for all roles. Our University Recruiting and Intern programs weave diversity and inclusion into their strategies so that we are recruiting not only from diverse schools but also diverse clubs and programs across all schools. Our external relationships also are focused on organizations that represent diverse communities, including technical and non-technical women and ethnic minority organizations, as well as professional Veteran’s networks, to enable our hiring managers and recruiters to attend or speak at diverse conferences, share our job descriptions, and tell our employer brand story to a wider audience.

Inclusive Communities & Social Impact: We are in the process of developing new social impact programs to support employees and Roku in volunteerism, charitable activities, and youth engagement and anticipate we will have more to share related to our commitment to leaving a positive impact on young people and our wider community in future periods.

Inclusive Customer Advocacy: As a TV streaming platform for viewers in the U.S. and certain international locations, we want to reflect our users in our overall user experience and accessibility, content we license, and the channel on our platform. During 2020, we launched a policy designed to acknowledge key areas of diversity and identity thoughtfully, meaningfully, and inclusive of our diverse customer base, year-round.

Training & Employee Development

Our Learning and Development function provides our employees with the training and development needed to support our growth. Our employee training programs begin with a comprehensive New Hire Orientation that covers our culture and business. Our Orientation is supplemented by checklists and resources for an employee's first 90 days. In addition to mandatory training covering Anti-Harassment, Anti-Discrimination, and Privacy trainings, we offer employees a highly encouraged suite of training offerings such as Effective Feedback, Effective Meetings, and Communication and Presentation Skills. Managers also are provided an additional set of trainings on Expectations for Managers, Interviewing and Hiring, and Performance Management to support new and newly promoted leaders in how to manage and lead effectively. Our employees also have free access to additional training in technical and non-technical subjects through LinkedIn Learning. We intend to continue to review, refresh, purchase and/or custom build additional training materials to support the performance and development needs of our global employees.

Compensation and Benefits

Our total compensation program is designed to attract, retain, and reward talented professionals. As a result, we endeavor to pay competitive total compensation that is guided by market rates and tailored to account for the specific needs and responsibilities of a particular position as well as the unique qualifications of the individual employee. In determining each employee's total compensation, we consider what they would be paid by another employer, what we would have to pay to replace them it they leave Roku, and the amount we would pay to retain them. We pay employees total compensation that is comprised of salary and equity awards rather than offer specific benefits or perks that might be valued differently by different employees. We do not pay cash bonuses or have performance-based equity awards because our employees are expected to work at the highest level regardless of possible bonus payouts or awards.

Available Information

Our website address is www.roku.com. We make available, free of charge through our website, our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, and amendments to those reports, filed or furnished pursuant to Sections 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after they have been electronically filed with, or furnished to, the Securities Exchange Commission ("SEC"). Investors and others should note that we announce material financial information to our investors using our investor relations website (ir.roku.com), SEC filings, webcasts, press releases, and conference calls. We use these mediums to communicate with investors and the general public about our company, our products and services and other issues. It is possible that the information we make available may be deemed to be material information. We therefore encourage investors, the media, and others interested in our company to review the information we post on our investor relations website.

The SEC maintains an internet site (http://www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Information contained on or accessible through the websites listed above is not incorporated by reference nor otherwise included in this report, and any references to these websites are intended to be inactive textual references only.

Item 1A. Risk Factors

Our business involves significant risks, some of which are described below. You should carefully consider the risks and uncertainties described below, together with all the other information in this Report on Form 10-K, including "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and the related notes. If any of the following risks actually occurs, our business, reputation, financial condition, results of operations, revenue, and future prospects could be seriously harmed. In addition, you should consider the interrelationship and compounding effects of two or more risks occurring simultaneously. Unless otherwise indicated, references to our business being harmed in these risk factors will include harm to our business, reputation, financial condition, results of operations, revenue, and future prospects. In that event, the market price of our Class A common stock could decline, and you could lose part or all of your investment.

Risk Factors Summary

Below is a summary of the principal factors that make an investment in our Class A common stock speculative or risky:

Risks Related to Our Business and Industry

- the highly competitive nature of the TV streaming industry that is rapidly evolving;
- our ability to monetize our streaming platform;
- our ability to attract advertisers and advertising agencies to our demand-side advertising platform;
- our ability to develop relationships with TV brands and service operators;
- our ability to establish and maintain relationships with important content publishers;
- popular or new content publishers not publishing their content on our streaming platform;
- maintaining an adequate supply of quality video ad inventory on our platform and selling the available supply;
- content publishers electing not to participate in platform features that we develop;
- irrelevant or unengaging advertising, marketing campaigns or other promotional advertising on our platform;
- our ability to attract users to and generate revenue from The Roku Channel;
- users signing up for offerings and services outside of our platform;
- the evolution of our industry and the impact of many factors that our outside of our control;
- changes in consumer viewing habits;
- our and our Roku TV brand partners' reliance on retail sales channels to sell products;
- our ability to build a strong brand and maintain customer satisfaction and loyalty;
- advertiser and/or advertising agency delayed payment or failure to pay;
- maintaining adequate customer support levels;
- our ability to manage streaming device and other product introductions and transitions;
- our and our Roku TV brand partners' reliance on contract manufacturers and limited manufacturing capabilities;
- our ability to forecast manufacturing requirements and manage inventory;
- our ability to obtain key components from sole source suppliers;
- interoperability of our streaming devices with content publishers' offerings, technologies and systems;
- detecting hardware errors or software bugs in our products before they are released to users;
- component manufacturing, design or other defects that render our devices permanently inoperable;
- our ability to obtain necessary or desirable third-party technology licenses;

Risks Related to Operating and Growing Our Business

- our history of operating losses;
- volatility of our quarterly operating results that could cause our stock price to decline;
- our ability to manage our growth;
- our ability to successfully expand our international operations;
- seasonality of our business and its impact our revenue and gross profit;
- attracting and retaining key personnel and managing succession;
- maintaining systems that can support our growth, business arrangements and financial rules;
- our ability to successfully complete acquisitions and investments and integrate acquired businesses;
- our ability to comply with the terms of our outstanding credit facility;

- our ability to secure funds to meet our financial obligations and support our planned business growth;

Risks Related to Cybersecurity, Reliability and Data Privacy

- significant disruptions of information technology systems or data security breaches;
- legal obligations and potential liability related to our users' personal information;
- our actual or perceived failure to adequately protect the personal and confidential information;
- disruptions in computer systems or other services that results in a degradation of our platform;
- changes in how network operators manage data that travel across their networks;

Risks Related to Intellectual Property

- litigation resulting in the loss of important intellectual property rights;
- failure to protect or enforce our intellectual property or proprietary rights;
- our use of open source software;
- our agreement to indemnify certain of our partners if our technology is alleged to infringe on third-parties' intellectual property rights;

Risks Related to Macroeconomic Conditions

- the current and future impact of the COVID-19 pandemic on our business;
- natural disasters or other catastrophic events;

Legal and Regulatory Risks

- enactment of or changes to government regulation or laws related to our business;
- changes in general economic conditions, geopolitical conditions, and/or U.S. trade policies that impact our business;
- U.S. or international rules that permit ISPs to limit internet data consumption by users;
- changes to current or future laws, regulations or government actions that impact our partners;
- liability for content that is distributed through or advertising that is served through our platform;
- our ability to maintain effective internal controls over financial reporting;
- the impact of changes in accounting principles;
- compliance with laws and regulations related to the collection of sales tax and payment of income tax;
- changes to U.S. or foreign taxation laws or regulations;
- regulatory inquiries, investigations and proceedings;

Risks Related to Ownership of our Class A Common Stock

- The dual class structure of our Class A common stock;
- The volatility in the trading price of our Class A common stock;
- Potential dilution or a decline in our stock price caused by future sales or issuance of our capital stock or rights to purchase capital stock;
- A decline in our stock prices caused by future sales by existing stockholders;
- Dependency on favorable securities and industry analyst reports;
- The significant legal, accounting and other expenses associated with being a publicly-traded company;
- The absence of dividends on our Class A or Class B common stock;
- anti-takeover provisions in our charter; and
- the limitations resulting from our selection of the Delaware Court of Chancery and the federal district courts of the United States as the exclusive forums for substantially all disputes between us and our stockholders.

Risks Related to Our Business and Industry

TV streaming is highly competitive and many companies, including large technology companies, content owners and aggregators, TV brands and service operators, are actively focusing on this industry. If we fail to differentiate ourselves and compete successfully with these companies, it will be difficult for us to attract and retain users and our business will be harmed.

TV streaming is highly competitive and global. Our success depends in part on attracting and retaining users on, and effective monetization of, our streaming platform. To attract and retain users, we need to be able to respond efficiently to changes in consumer tastes and preferences and to offer our users access to the content they love on terms that they accept. Effective monetization requires us to continue to update the features and functionality of our streaming platform for users, content publishers and advertisers. We also must effectively support popular sources of streaming content that are available on our platform, such as Amazon Prime Video, Disney+, Discovery+, HBO Max, Hulu, Peacock, Netflix and YouTube. And we must respond rapidly to actual and anticipated market trends in the TV streaming industry.

Companies such as Amazon, Apple and Google offer TV streaming devices that compete with our streaming players. In addition, Google licenses its Android operating system software for integration into smart TVs and service provider set-top boxes, and Amazon licenses its operating system software for integration into smart TVs. These companies have greater financial resources than we do and can subsidize the cost of their streaming devices in order to promote their other products and services, which could make it harder for us to acquire new users, retain existing users and increase streaming hours. These companies could also implement standards or technology that are not compatible with our products or that provide a better streaming experience. These companies also promote their brands through traditional forms of advertising, such as TV commercials, as well as digital advertising or website product placement, and have greater resources to devote to such efforts than we do.

In addition, many TV brands offer their own TV streaming solutions within their TVs. Other devices, such as game consoles and many DVD and Blu-ray players, also incorporate TV streaming functionality. Similarly, some service operators offer TV streaming applications as part of their cable service plans and can leverage their existing consumer bases, installation networks, broadband delivery networks and name recognition to gain traction in the TV streaming market. If consumers of TV streaming content prefer alternative products to our streaming players and our partners' Roku TV models, we may not be able to achieve our expected growth in active accounts, streaming hours, revenue, gross profit or ARPU.

We expect competition in TV streaming from the large technology companies and service operators described above, as well as new and growing companies, to increase in the future. This increased competition could result in pricing pressure, lower revenue and gross profit or the failure of our players, Roku TV models or our platform to gain or maintain broad market acceptance. To remain competitive and maintain our position as a leading TV streaming platform we need to continuously invest in our platform, product development, marketing, service and support and device distribution infrastructure. In addition, evolving TV standards such as 8K, HDR and unknown future developments may require further investments in the development of our players, Roku TV models, and our platform. We may not have sufficient resources to continue to make the investments needed to maintain our competitive position. In addition, most of our competitors have longer operating histories, greater name recognition, larger customer bases and significantly greater financial, technical, sales, marketing and other resources than us, which provide them with advantages in developing, marketing or servicing new products and offerings. As a result, they may be able to respond more quickly to market demand, devote greater resources to the development, promotion, sales and distribution of their products or their content, and influence market acceptance of their products better than we can. These competitors may also be able to adapt more quickly to new or emerging technologies or standards and may be able to deliver products and services at a lower cost. Increased competition could reduce our sales volume, revenue and operating margins, increase our operating costs, harm our competitive position and otherwise harm our business.

In July 2018, we introduced our Roku TV Wireless Speakers, designed specifically for use with Roku TV models, in September 2019, we launched our Roku Smart Soundbar and Roku Wireless Subwoofer and in September 2020, we launched our Roku Streambar. As a result of these developments, we may face additional competition from makers of TV audio speakers and soundbars, as well as makers of other TV peripheral devices. While our audio products have not generated material amounts of revenue, if these products do not operate as designed or do not enhance the Roku TV or other viewing experience as we intend, our users' overall viewing experience may be diminished, and this may impact the overall demand for Roku TV models or our other products.

We also compete for video viewing hours with mobile platforms (phones and tablets), and users may prefer to view streaming content on such devices. Increased use of mobile or other platforms for TV streaming could adversely impact the growth of our streaming hours, harm our competitive position and otherwise harm our business.

Our future growth depends on the acceptance and growth of OTT advertising and OTT advertising platforms.

We operate in a highly competitive advertising industry and we compete for revenue from advertising with other streaming platforms and services, as well as traditional media, such as radio, broadcast, cable and satellite TV, and satellite and internet radio. These competitors offer content and other advertising mediums that may be more attractive to advertisers than our streaming platform. These competitors are often very large and have more advertising experience and financial resources than we do, which may adversely affect our ability to compete for advertisers and may result in lower revenue and gross profit from advertising. If we are unable to increase our revenue from advertising by, among other things, continuing to improve our platform's capabilities to further optimize and measure advertisers' campaigns, increase our advertising inventory and expand our advertising sales team and programmatic capabilities, our business and our growth prospects may be harmed. We may not be able to compete effectively or adapt to any such changes or trends, which would harm our ability to grow our advertising revenue and harm our business.

Many advertisers continue to devote a substantial portion of their advertising budgets to traditional advertising, such as linear TV, radio and print. The future growth of our business depends on the growth of OTT advertising, and on advertisers increasing their spend on advertising on our platform. Although traditional TV advertisers showed growing interest in OTT advertising during 2020, we cannot be certain that their interest will continue to increase or that they will not revert to traditional TV advertising, especially if our users no longer stream TV or significantly reduce the amount of TV they stream either as a result of lifting of stay-at-home orders, the end of the COVID-19 pandemic or for other reasons. If advertisers, or their agency relationships, do not perceive meaningful benefits of OTT advertising, the market may develop more slowly than we expect, which could adversely impact our operating results and our ability to grow our business.

We may not be successful in our efforts to further monetize our streaming platform, which may harm our business.

Our business model depends on our ability to generate platform revenue from advertisers and content publishers. We generate platform revenue primarily from advertising and audience development campaigns that run across our streaming platform and from content distribution services. As such, we are seeking to expand the number of active accounts and increase the number of hours that are streamed across our platform in an effort to create additional platform revenue opportunities. As our user base grows and as we increase the amount of content offered and streamed across our platform, we must effectively monetize our expanding user base and streaming activity. The total number of streaming hours, however, does not correlate with platform revenue on a period-by-period basis, primarily because we do not monetize every hour streamed on our platform. Moreover, streaming hours on our platform are measured whenever a player or a Roku TV is streaming content, whether a viewer is actively watching or not. For example, if a player is connected to a TV, and the viewer turns off the TV, steps away or falls asleep and does not stop or pause the player then the particular streaming channel may continue to play content for a period of time determined by the streaming channel. We believe that this also occurs across a wide variety of non-Roku streaming devices and other set-top boxes. Beginning in the third quarter of 2019 through the first quarter of 2020, we updated the Roku OS with a feature that is designed to identify when content has been continuously streaming on a channel for an extended period of time without user interaction. This feature, which we refer to as "Are you still watching," periodically prompts the user to confirm that they are still watching the selected channel and closes the channel if the user does not respond affirmatively. We believe that the implementation of this feature across the Roku platform benefits us, our customers, channel partners and advertisers. Some of our leading channel partners, including Netflix, also have similar features within their channels. This Roku OS feature supplements these channel features. This feature has not had and is not expected to have a material impact on our financial performance.

Our ability to deliver more relevant advertisements to our users and to increase our platform's value to advertisers and content publishers depends on the collection of user engagement data, which may be restricted or prevented by a number of factors. Users may decide to opt out or restrict our ability to collect personal viewing data or to provide them with more relevant advertisements. Content publishers may also refuse to allow us to collect data regarding user engagement or refuse to implement mechanisms we request to ensure compliance with our legal obligations or technical requirements. For example, we are not able to fully utilize program level viewing data from many of our most popular channels to improve the relevancy of advertisements provided to our users. Other channels available on our platform, such as Amazon Prime Video, Apple TV+, Hulu and YouTube, are focused on increasing user engagement and time spent within their channel by allowing users to purchase additional content and streaming services within their channels. In addition, we do not currently monetize content provided on non-certified channels, which are not displayed in our channel store and must be added manually by the user, on our streaming platform. If our users spend most of their time within particular channels where we have limited or no ability to place advertisements or leverage user information, or users opt out from our ability to collect data for use in providing more relevant advertisements, we may not be able to achieve our expected growth in platform revenue or gross profit. If we are unable to further monetize our streaming platform, our business may be harmed.

In order to materially increase the monetization of our streaming platform through the sale of video advertising, we will need our users to stream significantly more ad-supported content. Our efforts to monetize our streaming platform through ad-supported content are still developing and may not continue to grow as we expect. Further, while we have experienced, and expect to continue to experience, growth in our revenue from advertising, our efforts to monetize our streaming platform through the distribution of AVOD content are still developing and our advertising revenue may not grow as we expect. This means of monetization will require us to continue to attract advertising dollars to our streaming platform as well as deliver AVOD content that appeals to users. Accordingly, there can be no assurance that we will be successful in monetizing our streaming platform through the distribution of ad-supported content.

If we are unable to attract advertisers or advertising agencies to our OneView Ad Platform or if we are not successful in running a demand-side advertising platform, our business may be harmed.

In 2020, we announced the rebranding of the OneView Ad Platform, a demand-side platform through which advertisers and advertising agencies can programmatically purchase and manage their OTT, desktop and mobile advertising campaigns. OneView leverages the DSP developed by dataxu, which we acquired in November 2019, and integrates the reach, inventory and capabilities of our proprietary advertising products and services. The market for programmatic OTT ad buying is an emerging market, and our current and potential advertisers and advertising agencies may not shift to programmatic ad buying from other buying methods as quickly as we expect or at all. If the market for programmatic OTT ad buying deteriorates or develops more slowly than we expect, advertisers and advertising agencies may not use OneView or we may not attract prospective advertisers or advertising agencies to OneView, and our business could be harmed. In addition, we have limited experience running a DSP and if OneView does not have the functionality or services expected by advertisers or advertising agencies, we may not be able to attract their advertising spend to OneView or our existing customers may not maintain or increase their spend on OneView. If we fail to adapt to our rapidly changing industry or to our customers evolving needs, advertisers and advertising agencies will not adopt OneView and our business may be harmed. We also may not be able to compete effectively with more established DSPs or be able to adapt to changes or trends in programmatic OTT advertising, which would harm our ability to grow our advertising revenue and harm our business.

Our growth will depend in part on our ability to develop and expand our relationships with TV brand partners in the United States and international markets and, to a lesser extent, service operators.

We have developed, and intend to continue to develop and expand, relationships with TV brand partners and, to a lesser extent, service operators in both the United States and international markets. Our licensing arrangements are complex and time-consuming to negotiate and complete. Our current and potential partners include TV brands, cable and satellite companies and telecommunication providers. We continue to invest in the growth and expansion of our Roku TV program both in the United States and International markets. Our licensing program for service operators has historically been primarily focused on international markets and has not been growing in scale in recent years, as we have shifted the focus of our international growth to the sale of Roku streaming players and Roku TV models.

In the past few years, the sale of Roku TV models by our TV brand partners has materially contributed to our active account growth, to our streaming hours, and to our platform monetization efforts. This growth has primarily been in the United States; however, our Roku TV licensing program has been expanded to certain international markets. We license the Roku OS and our smart TV reference designs to certain TV brand partners to manufacture co-branded smart TVs. We have not received, nor do we expect to receive, license revenue from these arrangements, but we expect to incur expenses in connection with these commercial agreements. The primary economic benefits that we derive from these license arrangements have been and will likely continue to be indirect, primarily from growing our active accounts, increasing streaming hours and generating advertising-related revenues on our platform. If these arrangements do not continue to result in increased active accounts and streaming hours, and if that growth does not in turn lead to successfully monetizing that increased user activity, our business may be harmed.

The loss of a relationship with a TV brand or service operator could harm our results of operations, damage our reputation, increase pricing and promotional pressures from other partners and distribution channels, or increase our marketing costs. If we are not successful in maintaining existing and creating new relationships with any of these third parties, or if we encounter technological, content licensing or other impediments to our development of these relationships, our ability to grow our business could be adversely impacted.

Under these license arrangements, we generally have limited control over the amount and timing of resources these entities dedicate to the relationship. If our TV brand or service operator partners fail to meet their forecasts for distributing licensed streaming devices, or chose to deploy competing streaming solutions within their product lines, our business may be harmed.

We depend on a small number of content publishers for a majority of our streaming hours, and if we fail to maintain these relationships, our business could be harmed.

Historically, a small number of content publishers have accounted for a significant portion of the hours streamed on our platform. In the year ended December 31, 2020, the top three streaming services represented over 50% of all hours streamed in the period. If, for any reason, we cease distributing channels that have historically streamed a large percentage of the aggregate streaming hours on our platform, our streaming hours, active accounts or streaming device sales may be adversely affected, and our business may be harmed.

If popular or new content publishers do not publish content on our platform, we may fail to retain existing users and attract new users.

We must continuously maintain existing relationships and identify and establish new relationships with content publishers to provide popular streaming channels and popular content. In order to remain competitive, we must consistently meet user demand for popular streaming channels and content; particularly as we launch new players, new Roku TV models are introduced, or we enter new markets, including international markets. If we are not successful in helping our content publishers launch and maintain streaming channels that attract and retain a significant number of users on our streaming platform or if we are not able to do so in a cost-effective manner, our business will be harmed. Our ability to successfully help content publishers maintain and expand their channel offerings on a cost-effective basis largely depends on our ability to:

- effectively promote and market new and existing streaming channels;
- minimize launch delays of new and updated streaming channels; and
- minimize streaming platform downtime and other technical difficulties.

In addition, if service operators, including pay TV providers, refuse to grant our users access to stream certain channels or only make content available on devices they prefer, our ability to offer a broad selection of popular streaming channels or content may be limited. If we fail to help our content publishers maintain and expand their audiences on the Roku platform or their channels are not available on our platform, our business may be harmed.

Most of our agreements with content publishers are not long term and can be terminated by the content publishers under certain circumstances. Any disruption in the renewal of such agreements may result in the removal of certain channels from our streaming platform and may harm our active account growth and engagement.

We enter into agreements with all our content publishers, which have varying terms and conditions, including expiration dates. Our agreements with content publishers generally have terms of one to three years and can be terminated before the end of the term by the content publisher under certain circumstances, such as if we materially breach the agreement, become insolvent, enter bankruptcy, commit fraud or fail to adhere to the content publishers' security or other platform certification requirements. Upon expiration of these agreements, we are required to re-negotiate and renew them in order to continue providing content from these content publishers on our streaming platform. We have in the past been unable, and in the future may not be able, to reach a satisfactory agreement with certain content publishers before our existing agreements have expired. If we are unable to renew such agreements on a timely basis on mutually agreeable terms, we may be required to temporarily or permanently remove certain channels from our streaming platform. The loss of such channels from our streaming platform for any period of time may harm our business. More broadly, if we fail to maintain our relationships with the content publishers on terms favorable to us, or at all, or if these content publishers face problems in delivering their content across our platform, we may lose channel partners or users and our business may be harmed.

If we are unable to maintain an adequate supply of quality video ad inventory on our platform or effectively sell our available video ad inventory, our business may be harmed.

Our business model depends on our ability to grow video ad inventory on our streaming platform and sell it to advertisers. While The Roku Channel serves as a valuable source of video ad inventory for us to sell, we are also dependent on our ability to monetize video ad inventory within other ad-supported channels on our streaming platform. We seek to obtain the ability to sell such inventory from the content publishers of such channels. We may fail to attract content publishers that generate a sufficient quantity or quality of ad-supported content hours on our streaming platform, or fail to obtain access to a sufficient quantity and quality of ad inventory from the publishers of such content. Our access to video ad inventory in ad-supported streaming channels on our platform varies greatly among channels; accordingly, we do not have access to all of the video ad inventory on our platform. For certain channels, including YouTube's ad supported channel, we have no access to video ad inventory at this time, and we may not secure access in the future. The amount, quality and cost of video ad inventory available to us can change at any time. If we are unable to grow and maintain a sufficient supply of quality video ad inventory at reasonable costs to keep up with demand, our business may be harmed.

If our content publishers do not participate in new features that we may introduce from time to time, our business may be harmed.

As our streaming platform and products evolve, we will continue to introduce new features, which may or may not be attractive to our content publishers or meet their requirements. For example, some content publishers have elected not to participate in our cross-channel search feature, our integrated advertising framework, or have imposed limits on our data gathering for usage within their channels. In addition, our streaming platform utilizes our proprietary Brightscript scripting language in order to allow our content publishers to develop and create channels on our streaming platform. If we introduce new features or utilize a new scripting language in the future, such a change may not comply with our content publishers' certification requirements. In addition, our content publishers may find other languages, such as HTML5, more attractive to develop for and shift their resources to developing their channels on other platforms. If content publishers do not find our streaming platform simple and attractive to develop channels for, do not value and participate in all of the features and functionality that our streaming platform offers, or determine that our software developer kit or new features of our platform do not meet their certification requirements, our business may be harmed.

If the advertising and audience development campaigns and other promotional advertising on our platform are not relevant or not engaging to our users, our growth in active accounts and streaming hours may be adversely impacted.

We have made, and are continuing to make, investments to enable advertisers and content publishers to deliver relevant advertisement, audience development campaigns and other promotional advertising to our users. Existing and prospective advertisers and content publishers may not be successful in serving ads and audience development campaigns and sponsoring other promotional advertising that lead to and maintain user engagement. Those ads and campaigns may seem irrelevant, repetitive or overly targeted and intrusive. We are continuously seeking to balance the objectives of our advertisers and content publishers with our desire to provide an optimal user experience, but we may not be successful in achieving a balance that continues to attract and retain users, advertisers and content publishers. If we do not introduce relevant advertisers, audience development campaigns and other promotional adverting or such advertisements, audience development campaigns and other promotional advertising are overly intrusive and impede the use of our streaming platform, our users may stop using our platform which will harm our business.

The Roku Channel may not continue to attract a large number of users and/or generate significant revenue from advertising, and our users may not purchase Premium Subscriptions.

We operate The Roku Channel, which offers both ad-supported free access for users to a collection of films, television series and other content as well as Premium Subscriptions, which allowing our users to pay for ad-free content from various content publishers, all on one streaming channel. We have incurred, and will continue to incur, costs and expenses in connection with the development, expansion and operation of The Roku Channel, which we monetize primarily through advertising. For example, in the first quarter of 2021, we acquired global content distribution rights, including rights to certain projects in development, from the mobile-first video distribution service known as Quibi, and announced that The Roku Channel will become the home of such content. If our users do not continue to stream the free, ad-supported content we make available on The Roku Channel, we will not have the opportunity to monetize The Roku Channel through revenue generated from advertising. In order to attract users to the ad-supported content on The Roku Channel and drive streaming of ad-supported video on The Roku Channel, we must secure rights to stream content that is appealing to our users and advertisers. In part, we do this by directly licensing certain content from content owners, such as television and movie studios. The agreements that we enter into with these content owners have varying terms and provide us with rights to make specific content available through The Roku Channel during certain periods of time. Upon expiration of these agreements, we are required to re-negotiate and renew these agreements with the content owners, or enter into new agreements with other content owners, in order to obtain rights to distribute additional titles or to extend the duration of the rights previously granted. If we are unable to enter into content license agreements on acceptable terms to access content that enables us to attract and retain users of the ad-supported content on The Roku Channel, or if the content we do secure rights to stream, including for example the content that we acquired through the Quibi transaction described above, is ultimately not appealing to our users and advertisers, usage of The Roku Channel may decline, and our business may be harmed. Furthermore, if the advertisements on The Roku Channel are not relevant to our users or such advertisements are overly intrusive and impede our users' enjoyment of the available content, our users may not stream content and view advertisements on The Roku Channel, and The Roku Channel may not generate sufficient revenue from advertising to be cost effective for us to operate, regardless of our ability to sell Premium Subscriptions. In addition, we distribute The Roku Channel on platforms other than our own streaming platform, and there can be no assurance that we will be successful in attracting a large number of users and/or generating significant revenue from advertising through the distribution of The Roku Channel on such other streaming platforms.

If our users sign up for offerings and services outside of our platform or through other channels on our platform, our business may be harmed.

We earn revenue by acquiring subscribers for certain of our content publishers activated on or through our platform. If users do not use our platform for these purchases or subscriptions for any reason, and instead pay for services directly with content publishers or by other means that we do not receive attribution for, our business may be harmed. In addition, certain channels available on our platform allow users to purchase additional streaming services from within their channels. The revenue we earn from these transactions is generally not equivalent to the revenue we earn from activations on or through our platform that we receive full attribution credit for. Furthermore, for Premium Subscriptions, we only earn revenue for SVOD channels, including subscriptions to these services through The Roku Channel. Accordingly, if users activate subscriptions for SVOD channels, including channels available as Premium Subscriptions, other than on our platform, our business may be harmed.

We operate in a rapidly evolving industry that will be impacted by many factors that our outside of our control, which makes it difficult to evaluate our business and prospects.

TV streaming is a rapidly evolving industry, making our business and prospects difficult to evaluate. The growth and profitability of this industry and the level of demand and market acceptance for our products and streaming platform are subject to a high degree of uncertainty. We believe that the continued growth of streaming as an entertainment alternative will depend on the availability and growth of cost-effective broadband internet access, the quality of broadband content delivery, the quality and reliability of new devices and technology, the cost for users relative to other sources of content, as well as the quality and breadth of content that is delivered across streaming platforms. Accordingly, the future evolution of TV streaming as an industry, which is likely to impact our success, is dependent many of the factors that are outside of our control.

Changes in consumer viewing habits could harm our business.

The manner in which consumers access streaming content is changing rapidly. As the technological infrastructure for internet access continues to improve and evolve, consumers will be presented with more opportunities to access video, music and games on-demand with interactive capabilities. Time spent on mobile devices is growing rapidly, in particular by young adults streaming content as well as content from cable or satellite providers available live or on-demand on mobile devices. In addition, personal computers, smart TVs, DVD players, Blu-ray players, gaming consoles and cable set-top boxes allow users to access streaming content. If other streaming or technology providers are able to respond and take advantage of changes in consumer viewing habits and technologies better than us, our business could be harmed.

New entrants may enter the TV streaming market with unique service offerings or approaches to providing video. In addition, our competitors may enter into business combinations or alliances that strengthen their competitive positions. If new technologies render the TV streaming market obsolete or we are unable to successfully compete with current and new competitors and technologies, our business will be harmed.

We and our Roku TV brand partners depend on our retail sales channels to effectively market and sell our players and Roku TV models, and if we or our partners fail to maintain and expand effective retail sales channels, we could experience lower player or Roku TV model sales.

To continue to increase our active accounts, we must maintain and expand our retail sales channels. The majority of our players and our TV brand partners' Roku TV models are sold through traditional brick and mortar retailers, such as Best Buy, Target and Walmart, including their online sales platforms, and online retailers such as Amazon. To a lesser extent, we sell players directly through our website and internationally through distributors. For the year ended December 31, 2020, Amazon, Best Buy and Walmart in total accounted for 69% of our player segment revenue. These three retailers collectively accounted for 72% and 68% of our player revenue for the years ended December 31, 2019 and 2018, respectively. These retailers and our international distributors also sell products offered by our competitors. We have no minimum purchase commitments or long-term contracts with any of these retailers or distributors. If one or several retailers or distributors were to discontinue selling our players or our TV brand partners' Roku TV models, choose not to prominently display those devices in their stores or on their websites, or close or severely limit access to their brick and mortar locations because of shutdowns related to the COVID-19 pandemic, the volume of our streaming devices sold could decrease, which would harm our business. If any of our existing TV brands choose to work exclusively with, or divert a significant portion of their business with us to, other operating system developers, this may impact our ability to license the Roku OS and our smart TV reference design to TV brands and our ability to continue to grow active accounts. Traditional retailers have limited shelf and end cap space in their stores and limited promotional budgets, and online retailers have limited prime website product placement space. Competition is intense for these resources, and a competitor with more extensive product lines and stronger brand identity, such as Amazon or Google, possesses greater bargaining power with retailers. In addition, one of our online retailers, Amazon, sells its own competitive streaming devices and is able to market and promote these products more prominently on its website, and could refuse to offer or promote our devices on its website. Any reduction in our ability to place and promote our devices, or increased competition for available shelf or website placement, could require us to increase our marketing expenditures to maintain our product visibility or result in reduced visibility for our products, which may harm our business. In particular, the availability of product placement during peak retail periods, such as the holiday season, is critical to our revenue growth, and if we are unable to effectively sell our devices during these periods, our business would be harmed.

If our efforts to build a strong brand and maintain customer satisfaction and loyalty are not successful, we may not be able to attract or retain users, and our business may be harmed.

Building and maintaining a strong brand is important to attract and retain users, as potential users have a number of TV streaming choices. Successfully building a brand is a time consuming and comprehensive endeavor and can be positively and negatively impacted by any number of factors. Certain factors, such as the quality or pricing of our players or our customer service, are within our control. Other factors, such as the quality and reliability of Roku TV models and the quality of the content that our content publishers provide, may be out of our control, yet users may nonetheless attribute those factors to us. Our competitors may be able to achieve and maintain brand awareness and market share more quickly and effectively than we can. Many of our competitors are larger companies and promote their brands through traditional forms of advertising, such as print media and TV commercials, and have substantial resources to devote to such efforts. Our competitors may also have greater resources to utilize digital advertising or website product placement more effectively than we can. If we are unable to execute on building a strong brand, it may be difficult to differentiate our business and streaming platform from our competitors in the marketplace, therefore our ability to attract and retain users may be adversely affected and our business may be harmed.

Our streaming platform allows our users to choose from thousands of channels, representing a variety of content from a wide range of content publishers. Our users can choose and control which channels they download and watch, and they can use certain settings to prevent channels from being downloaded to our streaming devices. While we have policies that prohibit the publication of content that is unlawful, incites illegal activities or violates third-party rights, among other things, we may distribute channels that include controversial content. Controversies related to the content included on certain of the channels that we distribute could result in negative publicity, cause harm to our reputation and brand, or subject us to claims and may harm our business.

We are subject to payment-related risks and, if our advertisers or advertising agencies do not pay or dispute their invoices, our business may be harmed.

Many of our contracts with advertising agencies provide that if the advertiser does not pay the agency, the agency is not liable to us, and we must seek payment solely from the advertiser, a type of arrangement called sequential liability. Contracting with these agencies, which in some cases have or may develop higher-risk credit profiles, may subject us to greater credit risk than if we were to contract directly with advertisers. This credit risk may vary depending on the nature of an advertising agency's aggregated advertiser base. In addition, typically, we are contractually required to pay advertising inventory data suppliers within a negotiated period of time, regardless of whether our advertisers or advertising agencies pay us on time, or at all. In addition, we typically experience slow payment cycles by advertising agencies as is common in the advertising industry. While we attempt to balance payment periods with our suppliers and advertisers and advertising agencies, we are not always successful. As a result, we can often face a timing issue with our accounts payable on shorter cycles than our accounts receivables, requiring us to remit payments from our own funds, and accept the risk of credit losses.

We may also be involved in disputes with agencies and their advertisers over the operation of our streaming platform, the terms of our agreements or our billings for purchases made by them through on our streaming platform or through our DSP. If we are unable to collect or make adjustments to bills, we could incur credit losses, which could have a material adverse effect on our results of operations for the periods in which the write-offs occur. In the future, bad debt may exceed reserves for such contingencies and our bad debt exposure may increase over time. Any increase in write-offs for bad debt could have a materially negative effect on our business, financial condition and operating results. If we are not paid by our advertisers or advertising agencies on time or at all, our business may be harmed.

The quality of our customer support is important to our users and licensees, and, if we fail to provide adequate levels of customer support, we could lose users and licensees, which would harm our business.

Our users and licensees depend on our customer support organization to resolve any issues relating to our devices. A high level of support is critical for the successful marketing and sale of our devices. We currently outsource our customer support operation to a third-party customer support organization. If we do not effectively train, update and manage our third-party customer support organization to assist our users, and if that support organization does not succeed in helping them quickly resolve issues or provide effective ongoing support, it could adversely affect our ability to sell our devices to users and harm our reputation with potential new users and our licensees.

We must successfully manage streaming device and other product introductions and transitions to remain competitive.

We must continually develop new and improved streaming devices and other products that meet changing consumer demands. Moreover, the introduction of a new streaming device or other product is a complex task, involving significant expenditures in research and development, promotion and sales channel development. For example, in 2018, we introduced our Roku TV Wireless Speakers, designed specifically for use with Roku TV models, in 2019 we introduced our Roku Smart Soundbar and Roku Wireless Subwoofer, and in 2020 we launched our Roku Streambar. Whether users will broadly adopt new streaming devices or other products is not certain. Our future success will depend on our ability to develop new and competitively priced streaming devices and other products and add new desirable content and features to our streaming platform. Moreover, we must introduce new streaming devices and other products in a timely and cost-effective manner, and we must secure production orders for those products from our contract manufacturers. The development of new streaming devices and other products is a highly complex process, and while our research and development efforts are aimed at solving increasingly complex problems, we do not expect that all of our projects will be successful. The successful development and introduction of new streaming devices and products depends on a number of factors, including:

- the accuracy of our forecasts for market requirements beyond near term visibility;
- our ability to anticipate and react to new technologies and evolving consumer trends;
- our development, licensing or acquisition of new technologies;
- our timely completion of new designs and development;
- the ability of our contract manufacturers to cost-effectively manufacture our new products;
- the availability of materials and key components used in manufacturing;

- tariffs and trade and export restrictions by the U.S. or foreign governments which could impact the pricing and availability of such devices and depress consumer demand; limit the ability of our contract manufacturers to obtain key parts, components, software, and technologies; lead to shortages; and
- our ability to attract and retain world-class research and development personnel.

If any of these or other factors materializes, we may not be able to develop and introduce new products in a timely or cost-effective manner, and our business may be harmed.

We do not have manufacturing capabilities and primarily depend upon a limited number of contract manufacturers, and our operations could be disrupted if we encounter problems with our contract manufacturers.

We do not have any internal manufacturing capabilities and rely on a limited number of contract manufacturers to build our players, smart soundbars, wireless subwoofers and our wireless speakers. Our contract manufacturers are vulnerable to:

- capacity constraints,
- reduced component availability,
- production disruptions or delays, including from strikes, mechanical issues, quality control issues, natural disasters, and public health crises, such as the pandemic caused by the outbreak of the coronavirus, known as COVID-19; and
- the impact of U.S. or foreign tariffs or trade restrictions on components, finished goods, software, or other products;
- increases in U.S. tariffs on imports of our players; and
- foreign tariffs on U.S. parts or components for finished players or other Roku products that are assembled in Asia.

As a result, we have limited control over delivery schedules, manufacturing yields and costs, particularly when components are in short supply or when we introduce new streaming devices or other products. For example, during the quarter ended March 31, 2020, one of our contract manufacturers experienced extended factory closures related to the spread of COVID-19 resulting in supply chain disruptions for our players and elevated air freight costs to meet demand.

We also have limited control over our contract manufacturers' quality systems and controls, and therefore must rely on them to manufacture our players and other products to our quality and performance standards and specifications. Delays, component shortages and other manufacturing and supply problems could impair the retail distribution of our players and other products and ultimately our brand. Furthermore, any adverse change in our contract manufacturer's financial or business condition could disrupt our ability to supply our players or other products to our retailers and distributors.

Our contracts with our contract manufacturers generally do not obligate them to supply our players or other products in any specific quantity or at any specific price. In the event our contract manufacturers are unable to fulfill our production requirements in a timely manner, their costs increase because of U.S. or international tariffs or export or import restrictions, or they decide to terminate their relationship with us, our order fulfillment may be delayed, and we would have to identify, select and qualify acceptable alternative contract manufacturers. Alternative contract manufacturers may not be available to us when needed or may not be in a position to satisfy our production requirements at commercially reasonable prices, to our quality and performance standards or at all. Any significant interruption in manufacturing at our contract manufacturers for any reason could require us to reduce our supply of players or other products to our retailers and distributors, which in turn would reduce our revenue, or to incur higher freight costs than anticipated, which would negatively impact our player gross margin. In addition, our contract manufacturer's facilities are located in Southeast Asia, the People's Republic of China and Brazil and may be subject to political, economic, labor, trade, social and legal uncertainties that may harm or disrupt our relationships with these parties. We believe that the international location of these facilities increases supply risk, including the risk of supply interruptions, tariffs, and trade restrictions on exports or imports. Furthermore, any manufacturing issues affecting the quality of our products, including players and audio products, could harm our business.

If our contract manufacturers fail for any reason to continue manufacturing our players or other products in required volumes and at high quality levels, or at all, we would have to identify, select and qualify acceptable alternative contract manufacturers. Alternative contract manufacturers may not be available to us when needed, or at all, or may not be in a position to satisfy our production requirements at commercially reasonable prices, to our quality and performance standards, or at all. Any significant interruption in manufacturing at a contract manufacturer could require us to reduce our supply of players or other products to our retailers and distributors, which in turn would reduce our revenue, active account growth or streaming hour growth.

Certain Roku TV brands do not have manufacturing capabilities and primarily depend upon contract manufacturers, and the supply of Roku TV models to the market could be disrupted if they encounter problems with their contract manufacturers or suppliers.

Certain Roku TV brands do not have internal manufacturing capabilities and primarily rely upon contract manufacturers to build the Roku TV models that they sell to retailers. Their contract manufacturers may be vulnerable to capacity constraints and reduced component availability, increases in U.S. tariffs on imports of Roku TV models, future possible changes in U.S. regulations on exports of U.S. technologies or dealings with certain countries or parties, foreign tariffs on U.S. parts or components for Roku TV models that are assembled outside of the U.S., and their control over delivery schedules, manufacturing yields and costs, particularly when components are in short supply may be limited. Delays, component shortages, factory shutdowns due to the COVID-19 pandemic and other manufacturing and supply problems could impair the retail distribution of their Roku TV models. A significant interruption in the supply of Roku TV models to retailers and distributors could, in turn, reduce our active accounts and streaming hours.

Furthermore, any manufacturing issues affecting the quality of our Roku TV brand partners' Roku TV models, could harm our brand and our business.

If we fail to accurately forecast our manufacturing requirements and manage our inventory with our contract manufacturers, we could incur additional costs, experience manufacturing delays and lose revenue.

We bear supply risk under our contract manufacturing arrangements. Lead times for the materials and components that our contract manufacturers order on our behalf through different component suppliers vary significantly and depend on numerous factors, including the specific supplier, contract terms and market demand for a component at a given time. Lead times for certain key materials and components incorporated into our players or other products are currently lengthy, requiring our contract manufacturers to order materials and components several months in advance. If we overestimate our production requirements, our contract manufacturers may purchase excess components and build excess inventory. If our contract manufacturers, at our request, purchase excess components that are unique to our products or build excess products, we could be required to pay for these excess components or products. In the past, we have agreed to reimburse our contract manufacturers for purchased components that were not used as a result of our decision to discontinue a certain model of player or the use of particular components. If we incur costs to cover excess supply commitments, this would harm our business.

Conversely, if we underestimate our player or other product requirements, our contract manufacturers may have inadequate component inventory, which could interrupt the manufacturing of our players or other products and result in delays or cancellation of orders from retailers and distributors. In addition, from time to time we have experienced unanticipated increases in demand that resulted in the need to ship players via air freight, which is more expensive than ocean freight, and adversely affected our player gross margin during such periods of high demand, for example, during end-of-year holidays. If we fail to accurately forecast our manufacturing requirements, our business may be harmed.

Our players incorporate key components from sole source suppliers and if our contract manufacturers are unable to source these components on a timely basis, due to fabrication capacity issues or other material supply constraints, we will not be able to deliver our players to our retailers and distributors.

We depend on sole source suppliers for key components in our players. Our players utilize specific system on chip, or SoC, Wi-Fi silicon products and Wi-Fi front-end modules from various manufacturers, depending on the player, for which we do not have a second source. Although this approach allows us to maximize player performance on lower cost hardware, reduce engineering qualification costs and develop stronger relationships with our strategic suppliers, this also creates supply chain risk. These sole-source suppliers could be constrained by fabrication capacity issues or material supply issues, such as tariffs or other export or import restrictions on U.S. parts or components for finished players that are used in final assembly of their components or on the finished players themselves. There is also the risk that the strategic supplier may stop producing such components, cease operations or be acquired by, or enter into exclusive arrangements with, our competitors or other companies, or become subject to U.S. or foreign sanctions or export control restrictions or penalties. Such suppliers may also face production, shipping, or logistical constraints arising from the COVID-19 pandemic. Any such interruption or delay may force us to seek similar components from alternative sources, which may not be available. Switching from a sole-source supplier would require that we redesign our players to accommodate new components and would require us to re-qualify our players with regulatory bodies, such as the Federal Communications Commission ("FCC"), which would be costly and time-consuming.

Our reliance on sole-source suppliers involves a number of additional risks, including risks related to:

- supplier capacity constraints;
- price increases;
- timely delivery;
- component quality; and
- delays in, or the inability to execute on, a supplier roadmap for components and technologies.

Any interruption in the supply of sole-source components for our players could adversely affect our ability to meet scheduled player deliveries to our retailers and distributors, result in lost sales and higher expenses and harm our business.

Our players and Roku TV models must operate with various offerings, technologies and systems from our content publishers that we do not control. If our streaming devices do not operate effectively with those offerings, technologies and systems, our business may be harmed.

The Roku OS is designed for performance using relatively low-cost hardware, which enables us to drive user growth with our players and Roku TV models offered at a low cost to consumers. However, this hardware must be interoperable with all channels and other offerings, technologies and systems from our content publishers, including virtual multi-channel video programming distributors. We have no control over these offerings, technologies and systems beyond our channel certification requirements, and if our players and Roku TV models do not provide our users with a high-quality experience on those offerings on a cost-effective basis or if changes are made to those offerings that are not compatible with our players or Roku TV models, we may be unable to increase active account growth and user engagement, we may be required to increase our hardware costs and our business will be harmed. We plan to continue to introduce new products regularly and we have experienced that it takes time to optimize such products to function well with these offerings, technologies and systems. In addition, many of our largest content publishers have the right to test and certify our new products before we can publish their channels on these devices. The certification processes can be time consuming and introduce third-party dependencies into our product release cycles. If content publishers do not certify new products on a timely basis or require us to make changes in order to obtain certifications, our product release plans may be adversely impacted, or we may not continue to offer certain channels. To continue to grow our active accounts and user engagement, we will need to prioritize development of our streaming devices to work better with new offerings, technologies and systems. If we are unable to maintain consistent operability of our devices that is on parity with or better than other platforms, our business could be harmed. In addition, any future changes to offerings, technologies and systems from our content publishers, such as virtual service operators, may impact the accessibility, speed, functionality, and other performance aspects of our streaming devices. We may not successfully develop streaming devices that operate effectively with these offerings, technologies or systems. If it becomes more difficult for our users to access and use these offerings, technologies or systems, our business could be harmed.

Our streaming devices are technically complex and may contain undetected hardware errors or software bugs, which could manifest themselves in ways that could harm our reputation and our business.

Our streaming devices and those of our licensees are technically complex and have contained and may in the future contain undetected software bugs or hardware errors. These bugs and errors can manifest themselves in any number of ways in our devices or our streaming platform, including through diminished performance, security vulnerabilities, data quality in logs or interpretation of data, malfunctions or even permanently disabled devices. Some errors in our devices may only be discovered after a device has been shipped and used by users and may in some cases only be detected under certain circumstances or after extended use. We also update the Roku OS and our software on a regular basis, and, despite our quality assurance processes, we could introduce bugs in the process of any such update. The introduction of a serious software bug could result in devices becoming permanently disabled. We offer a limited one-year warranty in the United States and any such defects discovered in our devices after commercial release could result in loss of revenue or delay in revenue recognition, loss of customer goodwill and users and increased service costs, any of which could harm our business, operating results and financial condition. We could also face claims for product or information liability, tort or breach of warranty, or other violations of laws or regulations. In addition, our contracts with users contain provisions relating to warranty disclaimers and liability limitations, which may not be upheld. Defending a lawsuit, regardless of its merit, is costly and may divert management's attention and adversely affect the market's perception of Roku and our products. In addition, if our insurance coverage proves inadequate or future coverage is unavailable on acceptable terms or at all, our business could be harmed.

Components used in our products may fail as a result of manufacturing, design or other defects over which we have no control and render our devices permanently inoperable.

We rely on third-party component suppliers to provide certain functionalities needed for the operation and use of our products. Any errors or defects in such third-party technology could result in errors in our products that could harm our business. If these components have a manufacturing, design or other defect, they can cause our products to fail and render them permanently inoperable. For example, the typical means by which our users connect their home networks to our players is by way of a Wi-Fi access point in the home network router. If the Wi-Fi receiver in our player fails, then our player cannot detect a home network's Wi-Fi access point, and our player will not be able to display or deliver any content to the TV screen. As a result, we may have to replace these players at our sole cost and expense. Should we have a widespread problem of this kind, our reputation in the market could be adversely affected and our replacement of these players would harm our business.

If we are unable to obtain necessary or desirable third-party technology licenses, our ability to develop new streaming players or platform enhancements may be impaired.

We utilize commercially available off-the-shelf technology in the development of our players and streaming platform. As we continue to introduce new features or improvements to our players and our streaming platform, we may be required to license additional technologies from third parties. These third-party licenses may be unavailable to us on commercially reasonable terms, if at all. If we are unable to obtain necessary third-party licenses, we may be required to obtain substitute technologies with lower quality or performance standards, or at a greater cost, any of which could harm the competitiveness of our players, streaming platform and our business.

Risks Related to Operating and Growing Our Business

We have incurred operating losses in the past, expect to incur operating losses in the future and may never achieve or maintain profitability.

We began operations in 2002 and we have experienced net losses and negative cash flows from operations in each year since inception. As of December 31, 2020, we had an accumulated deficit of $332.4 million and for the year ended December 31, 2020 we experienced a net loss of $17.5 million. We expect our operating expenses to increase in the future as we continue to expand our operations. If our revenue and gross profit do not grow at a greater rate than our operating expenses, we will not be able to achieve and maintain profitability. We expect to incur significant losses in the future for a number of reasons, including without limitation the other risks and uncertainties described herein. Additionally, we may encounter unforeseen operating or legal expenses, difficulties, complications, delays and other factors that may result in losses in future periods. If our expenses exceed our revenue, we may never achieve or maintain profitability and our business may be harmed.

Our quarterly operating results may be volatile and are difficult to predict, and our stock price may decline if we fail to meet the expectations of securities analysts or investors.

Our revenue, gross profit and other operating results could vary significantly from quarter-to-quarter and year-to-year and may fail to match our past performance due to a variety of factors, including many factors that are outside of our control. Factors that may contribute to the variability of our operating results and cause the market price of our Class A common stock to fluctuate include:

- the entrance of new competitors or competitive products or services, whether by established or new companies;
- our ability to retain and grow our active account base, increase engagement among new and existing users, and monetize our streaming platform;
- our ability to maintain effective pricing practices, in response to the competitive markets in which we operate or other macroeconomic factors, such as inflation or increased taxes;

- our revenue mix, which drives gross profit;
- supply of advertising inventory on our advertising platform and advertiser demand for advertising inventory;
- seasonal, cyclical or other shifts in revenue from advertising or player sales;
- the timing of the launch of new or updated products, channels or features;
- the addition or loss of popular content or channels;
- the expense and availability of content to license for The Roku Channel;
- the ability of retailers to anticipate consumer demand;
- an increase in the manufacturing or component costs of our players or the manufacturing or component costs of our TV brand licensees for Roku TV models;
- delays in delivery of our players or our partners' Roku TV models, or disruptions in our or our licensees' supply or distribution chains, including any disruptions caused by the COVID-19 pandemic, tariffs, or other trade restrictions or disruptions; and
- an increase in costs associated with protecting our intellectual property, defending against third-party intellectual property infringement allegations or procuring rights to third-party intellectual property.

Our gross margins vary across our devices and platform offerings. Our player segment revenue has a lower gross margin compared to our platform segment revenue derived through our arrangements with advertising, content distribution, billing, and licensing activities. Gross margins on our players vary across player models and can change over time as a result of product transitions, pricing and configuration changes, component costs, player returns and other cost fluctuations. In addition, our gross margin and operating margin percentages, as well as overall profitability, may be adversely impacted as a result of a shift in device, geographic or sales channel mix, component cost increases, price competition, or the introduction of new streaming devices, including those that have higher cost structures with flat or reduced pricing. We have in the past and may in the future strategically reduce our player gross margin in an effort to increase the number of active accounts and grow our gross profit. As a result, our player segment revenue may not increase as rapidly as it has historically, or at all, and, unless we are able to continue to increase our platform revenue and grow the number of active accounts, we may be unable to grow gross profit and our business will be harmed. If a reduction in gross margin does not result in an increase in our active accounts or increase our platform revenue and gross profit, our financial results may suffer, and our business may be harmed.

If we have difficulty managing our growth in operating expenses, our business could be harmed.

We have experienced significant growth in our research and development, sales and marketing, support services, operations, and general and administrative functions in recent years and expect to continue to expand these activities. Our historical growth has placed, and expected future growth will continue to place, significant demands on our management, as well as our financial and operational resources, to:

- manage a larger organization;
- hire more employees, including engineers with relevant skills and experience;
- expand internationally;
- increase our sales and marketing efforts;
- expand the capacity to manufacture and distribute our players;
- broaden our customer support capabilities;
- support a larger number of TV brand and service operators;
- implement appropriate operational and financial systems; and
- maintain effective financial disclosure controls and procedures.

If we fail to manage our growth effectively, we may not be able to execute our business strategies and our business will be harmed.

We may be unable to successfully expand our international operations and our international expansion plans, if implemented, will subject us to a variety of risks that may harm our business.

We currently generate the vast majority of our revenue in the United States and have limited experience marketing, selling, licensing and supporting our devices and running or monetizing our streaming platform outside the United States. In addition, we have limited experience managing the administrative aspects of a global organization. While we intend to continue to explore opportunities to expand our business in international markets in which we see compelling opportunities, we may not be able to create or maintain international market demand for our devices and streaming platform.

In the course of expanding our international operations and operating overseas, in addition to the risks we face in the United States, we will be subject to a variety of risks that could adversely affect our business, including:

- differing regulatory requirements, including country-specific data privacy and security laws and regulations, consumer protection laws and regulations, tax laws, trade laws, labor regulations, tariffs, export quotas, custom duties on cross-border movements of goods or data flows, extension of limits on TV advertising minutes to OTT advertising, local content requirements, data or data processing localization requirements, or other trade restrictions;
- compliance with laws such as the Foreign Corrupt Practices Act, UK Bribery Act and other anti-corruption laws, U.S. or foreign export controls and sanctions, and local laws prohibiting corrupt payments to government officials;
- compliance with various privacy, data transfer, data protection, accessibility, consumer protection and child protection laws in the European Union ("EU") and other international markets that we operate in;
- slower adoption and acceptance of streaming devices and services in other countries;
- competition with other devices that consumers may use to stream TV or existing local traditional pay TV services and products, including those provided by incumbent pay TV service providers;
- greater difficulty supporting and localizing our streaming devices and streaming platform, including delivering support and training documentation in languages other than English;
- our ability to deliver or provide access to popular streaming channels or content to users in certain international markets;
- different or unique competitive pressures as a result of, among other things, the presence of local consumer electronics companies and the greater availability of free content on over-the-air channels in certain countries;
- availability of reliable broadband connectivity and wide area networks in areas targeted for expansion;
- challenges inherent in efficiently staffing and managing an increased number of employees over large geographic distances, including the need to implement appropriate systems, policies, compensation and benefits, and compliance programs;
- difficulties in understanding and complying with local laws, regulations and customs in foreign jurisdictions;
- differing legal and court systems, including limited or unfavorable intellectual property protection;
- unstable political and economic conditions whatever the cause, including pandemics, impacts from the United Kingdom's withdrawal from the EU (commonly referred to as "Brexit"), tariffs, trade wars, local or global recessions, or long-term environmental risks;
- international political or social unrest or economic instability, including U.S.-China tensions, and other political, security, or economic tensions between countries in which we do business or which serve as sources for Roku products;
- adverse tax consequences such as those related to changes in tax laws or tax rates or their interpretations could impact our judgment in determining our tax provision and effective tax rate;
- the imposition of customs duties on cross-border data flows for streaming services, which are currently prohibited under the WTO's e-commerce moratorium, but could be permitted if certain WTO Members continue to oppose extension of the moratorium when it is considered at the WTO's MC-12 Ministerial Meeting, which was postponed due to the COVID-19 pandemic and is scheduled to take place in 2021;
- digital services taxes, which have been imposed or are under consideration by several European and other countries, which would lead to taxes on certain digital services even though the providers would not be subject to tax under existing international tax rules and treaties;
- the COVID-19 pandemic or any other pandemics or epidemics could result in decreased economic activity in certain markets, decreased use of our products or platform, or in our decreased ability to import, export, ship, or sell our products to supply such services to existing or new customers in international markets;
- fluctuations in currency exchange rates could impact our revenue and expenses of our international operations and expose us to foreign currency exchange rate risk;
- restrictions on the repatriation of earnings from certain jurisdictions;
- future possible changes in U.S. regulations on exports of U.S. technologies or dealings with certain countries or parties, including expanding export control restrictions on China and Hong Kong; and
- working capital constraints.

If we invest substantial time and resources to expand our international operations and are unable to do so successfully and in a timely manner, our business and financial condition may be harmed.

Our revenue and gross profit are subject to seasonality and if our sales during the holiday season fall below our expectations, our business may be harmed.

Seasonal consumer shopping patterns significantly affect our business. Specifically, our revenue and gross profit are traditionally strongest in the fourth quarter of each fiscal year and represent a high percentage of the total net revenue for such fiscal year due to higher consumer purchases and increased advertising during holiday seasons. Furthermore, a significant percentage of our player sales through retailers in the fourth quarter are pursuant to committed sales agreements with retailers for which we recognize significant discounts in the average selling prices in the third quarter in an effort to grow our active accounts, which will reduce our player gross margin.

Given the seasonal nature of advertising and our device sales, accurate forecasting is critical to our operations. We anticipate that this seasonal impact on revenue and gross profit is likely to continue, and any shortfall in expected fourth quarter revenue due to a decline in the effectiveness of our promotional activities, actions by our competitors, disruptions in our supply or distribution chain, tariffs or other restrictions on trade, or for any other reason, would cause our full year results of operations to suffer significantly. For example, delays or disruptions at U.S. ports of entry could adversely affect our or our distributors' ability to timely deliver players and co-branded Roku TV models to retailers during the holiday season. A substantial portion of our expenses are personnel related, including salaries, stock-based compensation and benefits, and facilities related none of which are seasonal in nature. Accordingly, in the event of a revenue shortfall, we would be unable to mitigate the negative impact on gross profit and operating margins, at least in the short term, and our business would be harmed.

If we fail to attract and retain key personnel, effectively manage succession, or hire, develop, and motivate our employees, we may not be able to execute our business strategy or continue to grow our business.

Our success depends in large part on our ability to attract and retain key personnel on our senior management team and in our engineering, research and development, sales and marketing, operations and other organizations. In particular, our founder, President and Chief Executive Officer, Anthony Wood, is critical to our overall management, as well as the continued development of our devices and streaming platform, our culture and our strategic direction. We do not have long-term employment or non-competition agreements with any of our key personnel. The loss of one or more of our executive officers or the inability to promptly identify a suitable successor to a key role could have an adverse effect on our business.

Our ability to compete and grow depends in large part on the efforts and talents of our employees. Our employees, particularly engineers and other product developers, are in high demand, and we devote significant resources to identifying, hiring, training, successfully integrating and retaining these employees. Because we face significant competition for personnel, particularly in the San Francisco Bay Area where our headquarters is located, to attract top talent, we have had to offer, and believe we will need to continue to offer, competitive compensation packages before we can validate the productivity of those employees. To retain employees, we also may need to increase our employee compensation levels in response to competition. The loss of employees or the inability to hire additional skilled employees is necessary to support our growth could result in significant disruptions to our business, and the integration of replacement personnel could be time-consuming and expensive and cause disruptions.

We believe a critical component to our success and our ability to retain our best people is our culture. As we continue to grow, we may find it difficult to maintain our entrepreneurial, execution-focused culture. In addition, many of our employees may be able to receive significant proceeds from sales of our equity in the public markets, which may reduce their motivation to continue to work for us. Moreover, the equity ownership of many of our employees could create disparities in wealth among our employees, which may harm our culture and relations among employees and our business.

We need to maintain operational and financial systems that can support our expected growth, increasingly complex business arrangements, and rules governing revenue and expense recognition and any inability or failure to do so could adversely affect our financial reporting, billing and payment services.

We have a complex business that is growing in size and complexity both in the United States and in international jurisdictions. To manage our growth and our increasingly complex business operations, especially as we move into new markets internationally or acquire new businesses, we will need to maintain and may need to upgrade our operational and financial systems and procedures, which requires management time and may result in significant additional expense. Our business arrangements with our content partners, advertisers, Roku TV brand partners and other licensees, and the rules that govern revenue and expense recognition in our business are increasingly complex. To manage the expected growth of our operations and increasing complexity, we must maintain operational and financial systems, procedures and controls and continue to increase systems automation to reduce reliance on manual operations. An inability to do so will negatively affect our financial reporting, billing and payment services. Our current and planned systems, procedures and controls may not be adequate to support our complex arrangements and the rules governing revenue and expense recognition for our future operations and expected growth. Delays or problems associated with any improvement or expansion of our operational and financial systems and controls could adversely affect our relationships with our users, content publishers, advertisers, advertisement agencies, Roku TV brand partners, or other licensees; cause harm to our reputation and brand; and could also result in errors in our financial and other reporting.

We may pursue acquisitions, which involve a number of risks, and if we are unable to address and resolve these risks successfully, such acquisitions could harm our business.

We have in the past and may in the future acquire businesses, products or technologies to expand our offerings and capabilities, user base and business. We have evaluated, and expect to continue to evaluate, a wide array of potential strategic transactions; however, we have limited experience completing or integrating acquisitions. Any acquisition could be material to our financial condition and results of operations and any anticipated benefits from an acquisition may never materialize. Acquisitions could also result in dilutive issuances of equity securities or the incurrence of debt, which could adversely affect our operating results, may cause unfavorable accounting treatment, may expose us to claims and disputes by third parties, including intellectual property claims, and may not generate sufficient financial returns to offset additional costs and expenses related to the acquisitions. In addition, the process of integrating acquired businesses, products or technologies may create unforeseen operating difficulties and expenditures. Acquisitions of businesses, products or technologies in international markets would involve additional risks, including those related to integration of operations across different cultures and languages, currency risks and the particular economic, political and regulatory risks associated with specific countries. We may not be able to address these risks successfully, or at all, without incurring significant costs, delays or other operational problems and if we were unable to address such risks successfully our business could be harmed.

We have outstanding debt and our credit facility provides our lender with a first-priority lien against substantially all of our assets and contains financial covenants and other restrictions on our actions that may limit our operational flexibility or otherwise adversely affect our financial condition.

We entered into a credit agreement among us, as borrower, the lenders and issuing banks from time to time party thereto, and Morgan Stanley Senior Funding, Inc., or the Agent providing for a (i) four-year revolving credit facility in the aggregate principal amount of up to $100.0 million, (the “Revolving Credit Facility”), (ii) a four-year delayed draw term loan A facility in the aggregate principal amount of up to $100.0 million, (the “Term Loan A Facility”) and (iii) an uncommitted incremental facility subject to certain conditions (collectively, the “Credit Agreement”). The Credit Agreement contains a number of affirmative and negative covenants, which may restrict our current and future operations, particularly our ability to respond to certain changes in our business or industry or take future actions. The Credit Agreement also contains a financial covenant requiring us to maintain a minimum adjusted quick ratio of at least 1.00 to 1.00, tested as of the last day of any fiscal quarter on the basis of the prior period of our four consecutive fiscal quarters. Pursuant to the Credit Agreement, we granted the Agent a security interest in substantially all of our assets. See the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Senior Secured Term Loan A and Revolving Credit Facilities.”

In November 2019, we borrowed $100.0 million aggregate principal amount pursuant to the Term Loan A Facility and in March 2020, we borrowed $69.3 million aggregate principal amount of revolving loans pursuant to the Revolving Credit Facility. In May 2020, we entered into the Equity Distribution Agreement, pursuant to which we sold 4.0 million shares of our Class A common stock at an average selling price of $126.01 per share, for aggregate gross proceeds of $504.0 million, a portion of which was used to repay the $69.3 million outstanding under our Revolving Credit Facility. We also have outstanding letters of credit as of December 31, 2020 totaling $30.8 million against the Revolving Credit Facility.

As of December 31, 2020, we were in compliance with all of the financial covenants of the Credit Agreement. However, if we fail to comply with the covenants, make payments as specified in the Credit Agreement, or undergo any other event of default contained in the Credit Agreement, the Agent could declare an event of default, which would give it the right to terminate the commitments to provide additional loans and declare any borrowings outstanding, together with accrued and unpaid interest and fees, to be immediately due and payable. In addition, the Agent would have the right to proceed against the assets we provided as collateral pursuant to the Credit Agreement. If the outstanding debt under the Credit Agreement is accelerated, we may not have sufficient cash or be able to sell sufficient assets to repay it, which would harm our business and financial condition.

When we borrowed pursuant to the Revolving Credit Facility, we chose a variable interest rate based on London Inter-bank Offered Rate ("LIBOR") as the benchmark for establishing the applicable interest rate. LIBOR is the subject of national, international and other regulatory guidance and proposals for phase out. The future of LIBOR at this time is uncertain and any changes in the methods by which LIBOR is determined or regulatory activity related to LIBOR's phaseout could cause LIBOR to perform differently than in the past or cease to exist. The consequences of the developments cannot be entirely predicted and could have an adverse impact on the value of our LIBOR-linked financial obligations, such as an increase in the cost of our credit agreement indebtedness.

We may require additional capital to meet our financial obligations and support planned business growth, and this capital might not be available on acceptable terms or at all.

We intend to continue to make significant investments to support planned business growth and may require additional funds to respond to business challenges, including the need to develop new devices and enhance our streaming platform, maintain adequate levels of inventory to support our retail partners' demand requirements, improve our operating infrastructure or acquire complementary businesses, personnel and technologies. Our primary uses of cash include operating costs such as personnel-related expenses and capital spending. Our future capital requirements may vary materially from those currently planned and will depend on many factors including our growth rate and the continuing market acceptance of our streaming platform, the Roku OS and players along with the timing and effort related to the introduction of new platform features, players, hiring of experienced personnel, the expansion of sales and marketing activities, as well as overall economic conditions.

We may need to engage in equity or debt financings to secure additional funds. If we raise additional funds through future issuances of equity or convertible debt securities, our then existing stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our Class A common stock. Any debt financing we secure could involve additional restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. If we were to violate such restrictive covenants, we could incur penalties, increased expenses and an acceleration of the payment terms of our outstanding debt, which could in turn harm our business.

We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to support our business growth and to respond to business challenges could be significantly impaired, and our business may be harmed.

Risks Related to Cybersecurity, Reliability, and Data Privacy

Significant disruptions of our information technology systems or data security incidents could harm our reputation, cause us to modify our business practices and otherwise adversely affect our business and subject us to liability.

We are increasingly dependent on information technology systems and infrastructure to operate our business. In the ordinary course of our business, we collect, store, process and transmit large amounts of sensitive corporate, personal and other information, including intellectual property, proprietary business information, user payment card information, other user information and other confidential information. It is critical that we do so in a secure manner to maintain the confidentiality, integrity and availability of such information. Our obligations under applicable laws, regulations, contracts, industry standards, self-certifications, and other documentation may include maintaining the confidentiality, integrity and availability of personal information in our possession or control, maintaining reasonable and appropriate security safeguards as part of an information security program, and limits on the use and/or cross-border transfer of such personal information. These obligations create potential legal liability, to regulators, our business partners, our users, and other relevant stakeholders and also impact the attractiveness of our subscription service to existing and potential users.

We have outsourced certain elements of our operations (including elements of our information technology infrastructure) to third parties, or may have incorporated technology into our platform, that collects, processes, transmits and stores our users' or others' personal information (such as payment card information) and as a result, we manage a number of third-party vendors who may or could have access to our information technology systems (including our computer networks) or to our confidential information. In addition, many of those third parties in turn subcontract or outsource some of their responsibilities to third parties. As a result, our information technology systems, including the functions of third parties that are involved or have access to those systems, is very large and complex. While all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks and exposures, the size, complexity, accessibility and distributed nature of our information technology systems, and the large amounts of sensitive or personal information stored on those systems, make such systems potentially vulnerable to unintentional or malicious, internal and external threats on our technology environment. Vulnerabilities can be exploited from inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, "hacktivists," nation states and others. For example, despite our efforts to secure our information technology systems and the data contained in those systems, including any efforts to educate or train our employees, we remain vulnerable to phishing attacks.

Although we have, and may in the future, implement remote working protocols and offer work-issued devices to employees, the actions of our employees while working remotely may have a greater effect on the security of our systems and the data we process, including by increasing the risk of compromise to our systems or data arising from employees' combined personal and private use of devices, accessing our systems or data using wireless networks that we do not control, or the ability to transmit or store company-controlled data outside of our secured network. These risks have been heightened by the dramatic increase in the numbers of our employees who have been and are continuing to work from home as a result of government guidelines and internal policies that have been put in place in response to the COVID-19 pandemic.

In addition to the threat of unauthorized access or acquisition of sensitive or personal information, other threats could include the deployment of harmful malware, ransomware attacks, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of information. Some of these external threats may be amplified by the nature of our third-party web hosting, cloud computing, or network-dependent streaming services or suppliers. Our systems likely experience directed attacks on at least a periodic basis that are intended to interrupt our operations; interrupt our users', content publishers' and advertisers' ability to access our platform; extract money from us; and/or obtain our data (including without limitation user or employee personal information or proprietary information). Although we have implemented certain systems, processes, and safeguards intended to protect our information technology systems and data from such threats and mitigate risks to our systems and data, we cannot be certain that threat actors will not have a material impact on our systems or services in the future. Our safeguards intended to prevent or mitigate certain threats may not be sufficient to protect our information technology systems and data due to the developing sophistication and means of attack in the threat landscape. Recent developments in the threat landscape include an increased number of cyber extortion and ransomware attacks, with increases in the amount of ransom demands and the sophistication and variety of ransomware techniques and methodology. Additionally, our third-party vendors or business partners' information technology systems may be vulnerable to similar threats and our business could be affected by those or similar third-party relationships.

We maintain insurance policies to cover certain losses relating to our information technology systems. However, there may be exceptions to our insurance coverage such that our insurance policies may not cover some or all aspects of a security incident. Even where an incident is covered by our insurance, the insurance limits may not cover the costs of complete remediation and redress that we may be faced with in the wake of a security incident. The successful assertion of one or more large claims against us that exceeds our available insurance coverage, or results in changes to our insurance policies (including premium increases or the imposition of large deductible or co-insurance requirements), could have an adverse effect on our business. In addition, we cannot be sure that our existing insurance coverage and coverage for errors and omissions will continue to be available on acceptable terms or that our insurers will not deny coverage as to any future claim. Though it is difficult to determine what harm may directly result from any specific interruption or breach, any failure to maintain performance, reliability, security and availability of our network infrastructure to the satisfaction of our users, business partners, regulators or other relevant stakeholders may harm our reputation and our ability to retain existing users and attract new users. Because of our prominence in the TV streaming industry, we believe we may be a particularly attractive target for threat actors. Our platform also incorporates licensed software from third parties, including open-source software, and we may also be vulnerable to attacks that focus on such third-party software. Any attempts by threat actors to disrupt our platform, our streaming devices, website, computer systems or our mobile apps, if successful, could harm our business, subject us to liability, be expensive to remedy, cause harm to our systems and operations and damage our reputation. Efforts to prevent threat actors from entering our computer systems or exploiting vulnerabilities in our devices are expensive to implement and may not be effective in detecting or preventing intrusion or vulnerabilities. Such unauthorized access to our data could damage our reputation and our business and could expose us to the risk of contractual damages, litigation and regulatory fines and penalties that could harm our business. The risk of harm to our business caused by security incidents may also increase as we expand our product and service offerings and as we enter into new markets. Implementing, maintaining, and updating security safeguards requires substantial resources now and will likely be an increasing and substantial cost in the future.

Significant disruptions of our third-party vendors' and/or commercial partners' information technology systems or other similar data security incidents could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use or disclosure of, or the prevention of access to, sensitive or personal information, which could harm our business. In addition, information technology system disruptions, whether from attacks on our technology environment or from computer viruses, natural disasters, terrorism, war and telecommunication and electrical failures, could result in a material disruption of our product development and our business operations.

There is no way of knowing with certainty whether we have experienced any data security incidents that have not been discovered. While we have no reason to believe that we have experienced a data security incident that we have not discovered, attackers have become very sophisticated in the way they conceal their unauthorized access to systems, and many companies that have been attacked are not aware that they have been attacked. Any event that leads to unauthorized access, use or disclosure of personal information, including but not limited to personal information regarding our users, could disrupt our business, harm our reputation, compel us to comply with applicable federal and/or state breach notification laws and foreign law equivalents, subject us to time consuming, distracting and expensive litigation, regulatory investigation and oversight, mandatory corrective action, require us to verify the correctness of database contents, or otherwise subject us to liability under laws, regulations and contractual obligations, including those that protect the privacy and security of personal information. This could result in increased costs to us and result in significant legal and financial exposure and/or reputational harm. For example, in the wake of a data breach involving payment card data, we may be subject to substantial penalties and related enforcement for failure to adhere to the technical or operational security requirements of the Payment Card Industry ("PCI") Data Security Standards ("DSS") imposed by the PCI Council to protect cardholder data. Penalties arising from PCI DSS enforcement are inherently uncertain as penalties may be imposed by various entities within the payment card processing chain without regard to any statutory or universally mandated framework. Such enforcement could threaten our relationship with our banks, card brands we do business with, and our third-party payment processors.

In addition, any actual or perceived failure by us or our vendors or business partners to comply with our privacy, confidentiality or data security-related legal or other obligations to third parties, or any further security incidents or other unauthorized access events that result in the unauthorized access, release or transfer of sensitive information, which could include personal information, may result in governmental investigations, enforcement actions, regulatory fines, litigation, or public statements against us by advocacy groups or others, and could cause third parties, including current and potential partners, to lose trust in us including existing or potential users' perceiving our platform, system or networks as less desirable or we could be subject to claims by third parties that we have breached our privacy- or confidentiality-related obligations, which could materially and adversely affect our business and prospects. There can be no assurance that the limitations of liability in our contracts would be enforceable or adequate or would otherwise protect us from liabilities or damages. Moreover, data security incidents and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. While we have implemented security measures intended to protect our information technology systems and infrastructure, as well as the personal and proprietary information that we possess or control, there can be no assurance that such measures will successfully prevent service interruptions or further security incidents. Data protection laws around the world often require "reasonable", "appropriate" or "adequate" technical and organizational security measures, and the interpretation and application of those laws are often uncertain and evolving, and there can be no assurance that our security measures will be deemed adequate, appropriate or reasonable by a regulator or court. Moreover, even security measures that are deemed appropriate, reasonable, and/or in accordance with applicable legal requirements may not be able to protect the information we maintain. In addition to potential fines, we could be subject to mandatory corrective action due to a data security incident, which could adversely affect our business operations and result in substantial costs for years to come.

We and our service providers collect, process, transmit and store the personal information of our users, which creates legal obligations and exposes us to potential liability.

We collect, process, transmit and store information about a variety of individuals including our users and their devices, and rely on third party service providers to collect, process, transmit and store personal information of our users, including our users' payment card data. Further, we and our service providers as well as business partners use tracking technologies, including cookies, device identifiers and related technologies, to help us manage and track our users' interactions with our platform, devices, website and partners' content to deliver relevant advertising and personalized content for ourselves and on behalf of our partners on our devices.

We collect information about the interaction of users with our platform, devices, website, advertisements, and content publishers' streaming channels. To deliver relevant advertisements effectively, we must successfully leverage this data as well as data provided by third parties. Our ability to collect and use such data could be restricted by a number of factors, including users' having the ability to refuse consent to or opt out from our, our service providers or our advertising partners' collection and use of this data, restrictions imposed by advertisers, content publishers and service providers, changes in technology, and developments in laws, regulations and industry standards. For example, certain EU laws and regulations prohibit access to or storage of information on a user's device (such as cookies and similar technologies that we use for advertising) that is not "strictly necessary" to provide a user-requested service or used for the "sole purpose" of a transmission unless the user has provided unambiguous, affirmative consent, and users may choose not to provide this consent to collection of information which is used for advertising purposes. Any restrictions on our ability to collect or use data could harm our ability to grow our revenue, particularly our platform revenue which depends on engaging the relevant recipients of advertising campaigns.

Various federal, state, and foreign laws and regulations as well as industry standards and contractual obligations govern the collection, use, retention, cross-border transfer, localization, sharing and security of the data we receive from and about our users, employees and other individuals. The regulatory environment for the collection and use of personal information by device manufacturers, online service providers, content distributors, advertisers and publishers is evolving in the United States and internationally. Privacy groups and government bodies, including the Federal Trade Commission ("FTC"), state attorneys general, the European Commission and European data protection authorities, have increasingly scrutinized privacy issues with respect to devices that identify or are identifiable to a person (or household or device) and personal information collected through the internet, and we expect such scrutiny to continue to increase. The United States, U.S. states, and foreign governments have enacted and are considering laws and regulations that could significantly restrict industry participants' ability to collect, use and share personal information, such as by regulating the level of consumer notice and consent required before a company can place cookies or other tracking technologies. For example, the EU General Data Protection Regulation ("GDPR") became effective in May 2018 and imposes detailed requirements related to the collection, storage and use of personal information related to people located in the EU or which is processed in the context of EU operations and places new data protection obligations and restrictions on organizations and may require us to make further changes to our policies and procedures in the future beyond what we have already done.

Further, in the wake of Brexit, there has been uncertainty with regard to the regulation of data protection in the United Kingdom. Although the United Kingdom enacted a Data Protection Act in May 2018, and the EU may declare the United Kingdom's privacy laws as adequate for receiving personal information from the EU, a level of uncertainty remains regarding how data transfers to and from the United Kingdom will be regulated after Brexit. We made changes to our data protection compliance program to prepare for the GDPR and will continue to monitor the implementation and evolution of data protection regulations, but if we are not compliant with GDPR or other data protection laws or regulations if and when implemented, we may be subject to significant fines and penalties (such as restrictions on personal information processing) and our business may be harmed. For example, under the GDPR, fines of up to EUR 20 million or 4% of the annual global revenue of a noncompliant company, whichever is greater, as well as data processing restrictions could be imposed for violation of certain of the GDPR's requirements. Other countries have also proposed or passed legislation with obligations similar to that of the GDPR.

The U.S. data protection legal landscape also continues to evolve, with states such as California and Nevada having enacted broad-based data privacy and protection legislation and with states and the federal government continuing to consider additional data privacy and protection legislation. The potential effects of this legislation are far-reaching and may require us to modify our data processing practices and policies and to incur substantial costs and expenses in an effort to comply. Effective October 1, 2019, Nevada amended its existing Security of Personal Information Law ("SPI Law") to now require, among other things, that certain businesses provide a designated request address to intake requests from consumers to opt out of the sale of their personal data. The California Consumer Privacy Act went into effect in January 2020 and gives California residents certain rights with respect to their personal information such as rights to access and require deletion of their personal information, opt out of the sale of their personal information, and receive detailed information about how their personal information is used. The CCPA also provides for civil penalties for violations, as well as a private right of action for data breaches that may increase data breach litigation. The CCPA was amended and the California Office of the Attorney General published final regulations to implement portions of the CCPA. In November 2020, the California Privacy Rights Act ("CPRA") was passed into law and goes into effect on January 1, 2023 (with a 'look-back' to January 1, 2022). The CPRA builds on the CCPA and amongst other things, requires the establishment of a dedicated agency to regulate consumer privacy issues.

Data protection laws continue to proliferate throughout the world and such laws likely apply to our business. For example, Brazil's General Data Protection Law ("LGPD") came into effect on August 15, 2020. The LGPD bears many substantive similarities to the GDPR such as extra-territorial reach, enhanced privacy rights for individuals, data transfer restrictions and mandatory breach notification obligations. It carries penalties of up to 2% of a company's Brazilian revenue.

We are continuing to assess the impact of new and proposed data privacy and protection laws and proposed amendments to existing laws on our business.

Applicable data privacy and security laws may also obligate us to employ security measures that are appropriate to the nature of the data we collect and process and, among other factors, the risks attendant to our data processing activities in order to protect personal information from unauthorized access or disclosure, or accidental or unlawful destruction, loss, or alteration. We have implemented security measures that we believe are appropriate, but a regulator could deem our security measures not to be appropriate given the lack of prescriptive measures in certain data protection laws. Given the evolving nature of security threats and evolving safeguards, we cannot be sure that our chosen safeguards will protect against security threats to our business including the personal information that we process. However, even security measures that are appropriate, reasonable, and/or in accordance with applicable legal requirements may not be able to fully protect our information technology systems and the data contained in those systems, or our data that is contained in third parties' systems. Moreover, certain data protection laws impose on us responsibility for our employees and third parties that assist with aspects of our data processing. Our employees' or third parties' intentional, unintentional, or inadvertent actions may increase our vulnerability or expose us to security threats, such as phishing attacks, and we may remain responsible for successful access, acquisition or other disclosure of our data despite the quality and legal sufficiency of our security measures.

As part of our data protection compliance program, we have implemented data transfer mechanisms to provide for the transfer of personal information from the European Economic Area (the "EEA") to the United States. However, there are certain unsettled legal issues regarding the adequacy of these data transfer mechanisms, the resolution of which may adversely affect our ability to transfer personal information from the EEA to the United States. On July 16, 2020, the European Court of Justice (the highest EU Court) ruled the EU-US Privacy Shield to be an invalid data transfer mechanism, confirmed that the Model Clauses remain valid, and left unaddressed some issues regarding supplementary measures that may need to be taken to support transfers. We are currently awaiting regulatory guidance from EU Data Protection Authorities and the US Department of Commerce on the impact of this ruling on broader international data transfer compliance for companies, including guidance on specific supplementary measures that all companies would be required to implement in addition to the Model Clauses. This may involve changes that require significant time and resources to implement, including through adjusting our operations, conducting requisite data transfer assessments, and revising our contracts. Our ability to continue to transfer personal information outside of the EU may become significantly more costly and may subject us to increased scrutiny and liability under the GDPR, and we may experience operating disruptions if we are unable to conduct these transfers in the future. In addition, cloud service providers upon which our services depend are experiencing heightened scrutiny from EU regulators, which may lead to significant shifts or unavailability of cloud services to transfer personal information outside the EU, which may significantly impact our costs or ability to operate.

We will continue to review our business practices and may find it necessary or desirable to make changes to our personal information processing to cause our transfer and receipt of EEA residents' personal information to conform to applicable European law. The regulation of data privacy in the EU continues to evolve, and it is not possible to predict the ultimate effect of evolving data protection regulation and implementation over time. Member states also have some flexibility to supplement the GDPR with their own laws and regulations and may apply stricter requirements for certain data processing activities.

In addition, some countries are considering or have enacted 'data localization' laws requiring that user data regarding users in their country be maintained in their country. Maintaining local data centers in individual countries could increase our operating costs significantly. We expect that, in addition to the business as usual costs of compliance, the evolving regulatory interpretation and enforcement of laws such as the GDPR and CCPA, as well as other domestic and foreign data protection laws will lead to increased operational and compliance costs and will require us to continually monitor and, where necessary, make changes to our operations, policies, and procedures. Any failure or perceived failure to comply with privacy-related legal obligations, or any compromise of security of user data, may result in governmental enforcement actions, litigation, contractual indemnity or public statements against us by consumer advocacy groups or others. In addition to potential liability, these events could harm our business.

We publish privacy policies, notices and other documentation regarding our collection, processing, use and disclosure of personal information, credit card information and/or other confidential information. Although we endeavor to comply with our published policies, certifications, and documentation, we may at times fail to do so or may be perceived to have failed to do so. Moreover, despite our efforts, we may not be successful in achieving compliance if our employees or vendors fail to comply with our published policies, certifications, and documentation. Such failures can subject us to potential international, local, state and federal action if they are found to be deceptive, unfair, or misrepresentative of our actual practices.

We have incurred, and will continue to incur, expenses to comply with privacy and security standards and protocols imposed by law, regulation, industry standards and contractual obligations. Increased regulation of data collection, use and security practices, including self-regulation and industry standards, changes in existing laws, enactment of new laws, increased enforcement activity, and changes in interpretation of laws, could increase our cost of compliance and operation, limit our ability to grow our business or otherwise harm our business.

Our actual or perceived failure to adequately protect personal information and confidential information that we (or our service providers or business partners) collect, store or process could trigger contractual and legal obligations, harm our reputation, subject us to liability and otherwise adversely affect our business including our financial results.

In the ordinary course of our business, we collect, store and process personal information (including payment card information) and/or other confidential information of our employees, our partners, and our users. We use third-party service providers and subprocessors to help us deliver our services. These vendors may store or process personal information, payment card information and/or other confidential information of our employees, our partners, or our users. We collect such information from individuals located both in the United States and abroad and may store or process such information outside the country in which it was collected.

A variety of state, national, and foreign laws and regulations apply to the collection, use, retention, protection, disclosure, security, transfer, cross-border transfer, localization, and other processing of personal information. These privacy and data protection-related laws and regulations are evolving, with new or modified laws and regulations proposed and implemented frequently and existing laws and regulations subject to new or different interpretations. In addition, each state and the District of Columbia, Guam, Puerto Rico, the U.S. Virgin Islands, EU member states, and the United Kingdom, as well as some other foreign nations, have passed laws requiring notification to regulatory authorities, to affected users, and/or others within a specific timeframe when there has been a security breach involving certain personal information as well as impose additional obligations for companies. Additionally, our agreements with certain users or partners may require us to notify them in the event of a security breach. Such statutory and contractual disclosures are costly, could lead to negative publicity, may cause our users to lose confidence in the effectiveness of our security measures and require us to expend significant capital and other resources to respond to and/or alleviate problems caused by the actual or perceived security breach. Compliance with these obligations could delay or impede the development of new products and may cause reputational harm.

Litigation resulting from security breaches may adversely affect our business. Unauthorized access to our platform, systems, networks, or physical facilities could result in litigation with our users or other relevant stakeholders. These proceedings could force us to spend money in defense or settlement, divert management's time and attention, increase our costs of doing business, and/or adversely affect our reputation. We could be required to fundamentally change our business activities and practices or modify our products and/or platform capabilities in response to such litigation, which could have an adverse effect on our business. Any actual or perceived inability to adequately protect the privacy of individuals' information in our possession, custody or control may render our products or services less desirable and could harm our reputation and business. Any costs incurred as a result of this potential liability could harm our business.

Any significant disruption in our computer systems or those of third parties we utilize in our operations could result in a loss or degradation of service on our platform and could harm our business.

We rely on the expertise of our engineering and software development teams for the performance and operation of the Roku OS, streaming platform and computer systems. Service interruptions, errors in our software or the unavailability of computer systems used in our operations could diminish the overall attractiveness of our devices and streaming platform to existing and potential users. We utilize computer systems located either in our facilities or those of third-party server hosting providers and third-party internet-based or cloud computing services. Although we generally enter into service level agreements with these parties, we exercise no control over their operations, which makes us vulnerable to any errors, interruptions or delays that they may experience. In the future, we may transition additional features of our services from our managed hosting systems to cloud computing services, which may require significant expenditures and engineering resources. If we are unable to manage such a transition effectively, we may experience operational delays and inefficiencies until the transition is complete. Upon the expiration or termination of any of our agreements with third-party vendors, we may not be able to replace their services in a timely manner or on terms and conditions, including service levels and cost, that are favorable to us, and a transition from one vendor to another vendor could subject us to operational delays and inefficiencies until the transition is complete. In addition, fires, floods, earthquakes, power losses, telecommunications failures, break-ins and similar events could damage these systems and hardware or cause them to fail completely. As we do not maintain entirely redundant systems, a disrupting event could result in prolonged downtime of our operations and could adversely affect our business. Any disruption in the services provided by these vendors could have adverse impacts on our business reputation, customer relations and operating results.

If any aspect of our computer systems or those of third parties we utilize in our operations fails, it may lead to downtime or slow processing time, either of which may harm the experience of our users. We have experienced, and may in the future experience, service disruptions, outages and other performance problems due to a variety of factors, including infrastructure changes, human or software errors and capacity constraints. We expect to continue to invest in our technology infrastructure to maintain and improve the user experience and platform performance. To the extent that we or our third-party service hosting provider do not effectively address capacity constraints, upgrade or patch systems as needed and continually develop technology and network architecture to accommodate increasingly complex services and functions, increasing numbers of users, and actual and anticipated changes in technology, our business may be harmed.

Changes in how network operators manage data that travel across their networks could harm our business.

Our business relies upon the ability of our users to access high-quality streaming content through the internet. As a result, the growth of our business depends on our users' ability to obtain and maintain low-cost, high-speed access to the internet, which relies in part on the network operators' continuing willingness to upgrade and maintain their equipment as needed to sustain a robust internet infrastructure as well as their continued willingness to preserve the open and interconnected nature of the internet. We exercise no control over network operators, which makes us vulnerable to any errors, interruptions or delays in their operations. Any material disruption or degradation in internet services could harm our business.

To the extent that the number of internet users continues to increase, network congestion could adversely affect the reliability of our streaming platform. We may also face increased costs of doing business if network operators engage in discriminatory practices with respect to streamed video content in an effort to monetize access to their networks by data providers. In the past, internet service providers have attempted to implement usage-based pricing, bandwidth caps and traffic "shaping" or throttling. To the extent network operators were to create tiers of internet access service and either charge us for access to these tiers or prohibit our content offerings from being available on some or all of these tiers, our quality of service could decline, our operating expenses could increase and our ability to attract and retain users could be impaired, each of which would harm our business.

In addition, most network operators that provide consumers with access to the internet also provide these consumers with multichannel video programming. These network operators have an incentive to use their network infrastructure in a manner adverse to the continued growth and success of other companies seeking to distribute similar video programming. To the extent that network operators are able to provide preferential treatment to their own data and content, as opposed to ours, our business could be harmed.

Risks Related to Intellectual Property

Litigation regarding intellectual property rights could result in the loss of rights important to our devices and streaming platform, cause us to incur significant legal costs or otherwise harm our business.

Some internet, technology and media companies, including some of our competitors, own large numbers of patents, copyrights and trademarks, which they may use to assert claims against us. Third parties have asserted, and may in the future assert, that we have infringed, misappropriated or otherwise violated their intellectual property rights. As we grow and face increasing competition, the possibility of intellectual property rights claims against us will grow. Plaintiffs who have no relevant product revenue may not be deterred by our own issued patents and pending patent applications in bringing intellectual property rights claims against us. The cost of patent litigation or other proceedings, even if resolved in our favor, has been or could be substantial. Some of our competitors may be better able to sustain the costs of such litigation or proceedings because of their substantially greater financial resources. Patent litigation and other proceedings may also require significant management time and divert management from our business. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could impair our ability to compete in the marketplace. The occurrence of any of the foregoing could harm our business.

As a result of intellectual property infringement claims, or to avoid potential claims, we may choose or be required to seek licenses from third parties. These licenses may not be available on commercially reasonable terms, or at all. Even if we are able to obtain a license, the license would likely obligate us to pay license fees or royalties or both, and the rights granted to us might be nonexclusive, with the potential for our competitors to gain access to the same intellectual property. In addition, the rights that we secure under intellectual property licenses may not include rights to all of the intellectual property owned or controlled by the licensor, and the scope of the licenses granted to us may not include rights covering all of the products and services provided by us and our licensees. Furthermore, an adverse outcome of a dispute may require us to pay damages, potentially including treble damages and attorneys' fees, if we are found to have willfully infringed a party's intellectual property; cease making, licensing or using technologies that are alleged to infringe or misappropriate the intellectual property of others; expend additional development resources to redesign our products; enter into potentially unfavorable royalty or license agreements in order to obtain the right to use necessary technologies, content or materials; and to indemnify our partners and other third parties. In addition, any lawsuits regarding intellectual property rights, regardless of their success, could be expensive to resolve and would divert the time and attention of our management and technical personnel.

If we fail to protect or enforce our intellectual property or proprietary rights, our business and operating results could be harmed.

We regard the protection of our patents, trade secrets, copyrights, trademarks, trade dress, domain names and other intellectual property or proprietary rights as critical to our success. We strive to protect our intellectual property rights by relying on federal, state and common law rights, as well as contractual restrictions. We seek to protect our confidential proprietary information, in part, by entering into confidentiality agreements and invention assignment agreements with all our employees, consultants, contractors, advisors and any third parties who have access to our proprietary know-how, information or technology. However, we cannot be certain that we have executed such agreements with all parties who may have helped to develop our intellectual property or who had access to our proprietary information, nor can we be certain that our agreements will not be breached. Any party with whom we have executed such an agreement could potentially breach that agreement and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. We cannot guarantee that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Detecting the disclosure or misappropriation of a trade secret and enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, time-consuming and could result in substantial costs and the outcome of such a claim is unpredictable.

Further, the laws of certain foreign countries do not provide the same level of protection of corporate proprietary information and assets such as intellectual property, trademarks, trade secrets, know-how and records as the laws of the United States. For instance, the legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection. As a result, we may encounter significant problems in protecting and defending our intellectual property or proprietary rights abroad. Additionally, we may also be exposed to material risks of theft or unauthorized reverse engineering of our proprietary information and other intellectual property, including technical data, manufacturing processes, data sets or other sensitive information. Our efforts to enforce our intellectual property rights in such foreign countries may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop, which could have a material adverse effect on our business, financial condition and results of operations. Moreover, if we are unable to prevent the disclosure of our trade secrets to third parties, or if our competitors independently develop any of our trade secrets, we may not be able to establish or maintain a competitive advantage in our market, which could harm our business.

We have filed and will in the future file patent applications on inventions that we deem to be innovative. There is no guarantee that our patent applications will issue as granted patents, that the scope of the protection gained will be sufficient or that an issued patent may subsequently be deemed invalid or unenforceable. Patent laws, and scope of coverage afforded by them, have recently been subject to significant changes, such as the change to “first-to-file” from “first-to-invent” resulting from the Leahy-Smith America Invents Act. This change in the determination of inventorship may result in inventors and companies having to file patent applications more frequently to preserve rights in their inventions, which may favor larger competitors that have the resources to file more patent applications. Another change to the patent laws may incentivize third parties to challenge any issued patent in the United States Patent and Trademark Office (“USPTO”), as opposed to having to bring such an action in U.S. federal court. Any invalidation of a patent claim could have a significant impact on our ability to protect the innovations contained within our devices and platform and could harm our business.

The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions to maintain patent applications and issued patents. We may fail to take the necessary actions and to pay the applicable fees to obtain or maintain our patents. Noncompliance with these requirements can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to use our technologies and enter the market earlier than would otherwise have been the case.

We pursue the registration of our domain names, trademarks and service marks in the United States and in certain locations outside the United States. We are seeking to protect our trademarks, patents and domain names in an increasing number of jurisdictions, a process that is expensive and time-consuming and may not be successful or which we may not pursue in every jurisdiction in which we conduct business.

Litigation may be necessary to enforce our intellectual property or proprietary rights, protect our trade secrets or determine the validity and scope of proprietary rights claimed by others. Any litigation of this nature, regardless of outcome or merit, could result in substantial costs, adverse publicity or diversion of management and technical resources, any of which could adversely affect our business and operating results. If we fail to maintain, protect and enhance our intellectual property or proprietary rights, our business may be harmed.

Our use of open source software could impose limitations on our ability to commercialize our devices and our streaming platform.

We incorporate open source software in our streaming platform. From time to time, companies that incorporate open source software into their products and services have faced claims challenging the ownership of open source software and/or compliance with open source license terms. Therefore, we could be subject to suits by parties claiming ownership of what we believe to be open source software or noncompliance with open source licensing terms. Although we monitor our use of open source software, the terms of many open source software licenses have not been interpreted by U.S. courts, and there is a risk that such licenses could be construed in a manner that could impose unanticipated conditions or restrictions on the sale of our devices. In such event, we could be required to make our proprietary software generally available to third parties, including competitors, at no cost, to seek licenses from third parties in order to continue offering our devices, to re-engineer our devices or to discontinue the sale of our devices in the event re-engineering cannot be accomplished on a timely basis or at all, any of which could harm our business.

Under our agreements with many of our content publishers, licensees, distributors, retailers, contract manufacturer and suppliers, we are required to provide indemnification in the event our technology is alleged to infringe upon the intellectual property rights of third parties.

In certain of our agreements we indemnify our content publishers, licensees, distributors, retailers, manufacturing partners and suppliers. We have in the past, and may in the future, incur significant expenses defending these partners if they are sued for patent infringement based on allegations related to our technology. If a partner were to lose a lawsuit and in turn seek indemnification from us, we also could be subject to significant monetary liabilities. In addition, because the devices sold by our licensing partners and Roku TV brands often involve the use of third-party technology, this increases our exposure to litigation in circumstances where there is a claim of infringement asserted against the streaming device in question, even if the claim does not pertain to our technology.

Risks Related to Macroeconomic Conditions

The ongoing COVID-19 pandemic has impacted our business and we are unable to predict the extent to which the pandemic and related effects will continue to impact our business.

Beginning in the first quarter of 2020 and continuing into 2021, there has been widespread global impact from the COVID-19 pandemic, and our business has been, and will continue to be, impacted by the pandemic and resulting economic consequences. The spread of COVID-19 has caused us to take precautionary measures intended to help minimize the risk of the virus to our employees, including mandatory work-from-home policies, suspending non-essential business travel and canceling physical participation in meetings, events and conferences. We may take further actions as required by government authorities or that we determine are in the best interests of our employees, TV brand partners, content publishers, advertisers, retail and distribution partners, contract manufacturers, services venders and supply chain. There is no certainty that such measures will be sufficient to mitigate the risks posed by the COVID-19 pandemic, and an extended period of remote work arrangements could disrupt our business, introduce business and operational risks, including cybersecurity risks, and could make it more difficult for us to effectively manage our business.

The COVID-19 pandemic and the precautionary measures that we have taken in response have had a mixed impact on our business during the year ended December 31, 2020. When staying-at-home restrictions were first issued in the first quarter of 2020, we saw an acceleration in both streaming hours, which has moderated since peaking in early in the second quarter, and account activations. In our platform segment, we experienced increases in trials of and subscriptions to SVOD content, growth in the consumption of AVOD content, and increased purchases of TVOD content. During the second quarter of 2020, we experienced delays in the start of some video advertising campaigns and an increase in advertising campaign cancellations. We also have encountered supply chain disruptions related to our players that resulted in elevated air freight costs to replenish inventory and meet increased demand. Additionally, at times some of our retail partners have had to close or severely limit access to their brick-and-mortar locations, resulting in reduced sale of devices in these locations. For example, during the holiday season our partners saw fewer shoppers in their brick-and-mortar locations. Further, our management team has focused on addressing the impacts of the COVID-19 pandemic on our business, which has required and will continue to require, a significant investment of their time and resources, and has diverted their attention away from other aspects of our business. In light of the COVID-19 pandemic, during 2020 our management team took steps to slow the rate of growth of our operating expenses and capital expenditures. Our management team also monitored our liquidity and in May 2020, we entered into an Equity Distribution Agreement with Morgan Stanley & Co. LLC and Citigroup Global Markets Inc., as sales agents (the “Equity Distribution Agreement”), pursuant to which we sold 4.0 million shares of our Class A common stock at an average selling price of $126.01 per share, for aggregate gross proceeds of $504.0 million, a portion of which was used to repay $69.3 million that we drew down on our Revolving Credit Facility in March 2020. Our management team will continue to evaluate our investments and initiatives for 2021 and will continue to monitor our liquidity as the COVID-19 pandemic continues to evolve.

The extent to which the COVID-19 pandemic ultimately impacts our business will depend on future developments, which are uncertain and cannot be predicted, including, but not limited to, the duration and spread of the outbreak, its severity, the actions taken by governmental authorities to contain the virus or treat its impacts, the development and rollout of effective vaccines, possible variants of the virus that render vaccines ineffective, and how quickly and to what extent economic and operating conditions normalize. As staying-at-home restrictions are eased consumers may spend less time streaming TV, which could reduce our streaming hours and number of active accounts and also could negatively impact our platform revenue if we experience a decrease in sales of advertising or transactional revenue shares from content publishers. We also may incur significant operating costs and be exposed to increased liability risks as a result of the COVID-19 pandemic, both now and increasingly as once staying-at-home restrictions are lifted and employees begin to return to our offices, such as the cost of collecting additional information (including health and medical information) about our employees, contractors and visitors at our facilities; and testing supplies and personal protective equipment for on-site staff. In addition, with the increase in remote working during the COVID-19 pandemic, we may not be able to maintain the same level of control over the security of our systems or the personal information that we collect, store and process, particularly as cyber attackers appear to increasingly attempt to compromise systems and data in an effort to exploit this pandemic. Even after the COVID-19 pandemic itself has subsided, we may continue to experience impacts to our business as a result of any global economic impact, including as a result of an ongoing recession. For instance, a prolonged economic downturn may result in the purchase of fewer streaming devices which could lead to a reduction in account activations and streaming hours, and also could negatively impact our revenue. Our platform business also may be negatively impacted by decreases in total advertising spend, if advertising budgets do not continue to shift to OTT advertising or if acquiring content that our users want to watch becomes more difficult or costly for us or our content partners as the amount of new content decreases due to the COVID-19 pandemic. A prolonged economic downturn could also impact the overall financial condition of our TV brand partners, content publishers, advertisers, retailers, contract manufacturer, services venders and supply chain all of whom we depend on in order to operate our business. As a result, the current level of uncertainty over the economic and operational impacts of the COVID-19 pandemic means the impact on our business cannot be reasonably estimated at this time.

Natural disasters or other catastrophic events could disrupt and impact our business.

Occurrence of any catastrophic event, including earthquake, flood, tsunami or other weather event, power loss, internet failure, software or hardware malfunctions, cyber-attack, war, terrorist attack, medical epidemic or pandemic (such as the COVID-19 pandemic), other man-made disasters or other catastrophic events could disrupt our business operations. Any of these business disruptions could require substantial expenditures and recovery time in order to fully resume operations. In particular, our principal offices are located in California, our contract manufacturer and some of our suppliers are located in Asia both of which are regions known for seismic activity making our operations in these areas vulnerable to natural disasters or other business disruptions in these areas. Our insurance coverage may not compensate us for losses that may occur in the event of an earthquake or other significant natural disaster. In addition, acts of terrorism could cause disruptions to the internet or the economy as a whole. If our streaming platform was to fail or be negatively impacted as a result of a natural disaster or other event, our ability to deliver streaming content, including advertising, to our users would be impaired. Disruptions in the operations of our contract manufacturer as a result of a disaster or other catastrophic event could delay the manufacture and shipment of our players or other products, which could impact our business. If we are unable to develop adequate plans to ensure that our business functions continue to operate during and after a disaster or other catastrophic event and to execute successfully on those plans in the event of a disaster or catastrophic event, our business would be harmed.

Legal and Regulatory Risks

If government regulations or laws relating to the internet, video, advertising, or other areas of our business change, we may need to alter the manner in which we conduct our business, or our business could be harmed.

We are subject to general business regulations and laws, as well as regulations and laws specific to the internet and online services, which may include laws and regulations related to data privacy and security, consumer protection, data localization, law enforcement access to data, encryption, telecommunications, social media, payment processing, taxation, intellectual property, competition, electronic contracts, internet access, net neutrality, advertising, calling and texting, content restrictions, protection of children and accessibility, among others. We cannot guarantee that we have been or will be fully compliant in every jurisdiction. Litigation and regulatory proceedings are inherently uncertain, and the laws and regulations governing issues such as data privacy and security, payment processing, taxation, net neutrality, video, telecommunications, e-commerce tariffs and consumer protection related to the internet continue to develop. For example, laws relating to the liability of providers of online services for activities of their users and other third parties have been tested by a number of claims, including actions based on invasion of privacy and other torts, unfair competition, copyright and trademark infringement, and other theories based on the nature and content of the materials searched, the advertisements posted, actions taken or not taken by providers in response to user activity or the content provided by users. Congress has also enacted legislation related to liability of providers of online services and may continue to legislate in this area. The CCPA and Nevada SPI Law also apply to entities that do business in California and Nevada, respectively, and impose a number of requirements on internet and online services. Moreover, as internet commerce and advertising continue to evolve, increasing regulation by federal, state and foreign regulatory authorities becomes more likely.

As we develop new services and devices, and improve our streaming platform, we may also be subject to new laws and regulations specific to such technologies. For example, in developing our Roku TV reference design, we were required to understand, address and comply with an evolving regulatory framework for developing, manufacturing, marketing and selling TVs. If we fail to adequately address or comply with such regulations regarding the manufacture and sale of TVs, we may be subject to fines or sanctions, and our licensees may be unable to sell Roku TV models at all, which would harm our business and our ability to grow our user base.

Laws relating to data privacy and security, data localization, law enforcement access to data, encryption, and similar activities continue to proliferate, often with little harmonization between jurisdictions and limited guidance. A number of existing bills are pending in the U.S. Congress and other government bodies that contain provisions that would regulate, for example, how companies can use cookies and other tracking technologies to collect, use and share user information. The CCPA also imposes requirements on certain tracking activity. The EU already has existing laws, which are due for update in 2021, requiring advertisers or companies like ours to, for example, obtain unambiguous, affirmative consent from users for the placement of cookies or other tracking technologies and the delivery of relevant advertisements. If we or the third parties that we work with, such as contract payment processing services, content publishers, vendors or developers violate or are alleged to violate applicable privacy or security laws, industry standards, our contractual obligations, or our policies, such violations and alleged violations may also put our users' information at risk and could in turn harm our business and reputation and subject us to potential liability. Any of these consequences could cause our users, advertisers or publishers to lose trust in us, which could harm our business. Furthermore, any failure on our part to comply with these laws may subject us to liability and reputational harm.

Our use of data to deliver relevant advertising and other services on our platform places us and our content publishers at risk for claims under various unsettled laws, including the Video Privacy Protection Act ("VPPA"). Some of our content publishers have been engaged in litigation over alleged violations of the VPPA relating to activities on our platform in connection with advertising provided by unrelated third parties. The Federal Trade Commission has also in recent years revised its rules implementing the Children's Online Privacy Protection Act ("COPPA Rules") broadening the applicability of the COPPA Rules, including the types of information that are subject to these regulations, and it is currently examining whether additional changes are appropriate. Such actions could limit the information that we or our content publishers and advertisers may collect and use through certain content publishers, the content of advertisements and in relation to certain channel partner content. The CCPA also imposes certain opt in and opt out requirements for certain information about minors. We and our content publishers and advertisers could be at risk for violation or alleged violation of these and other privacy, advertising, or similar laws.

Changes in general economic conditions, geopolitical conditions, U.S. trade policies and other factors beyond our control may adversely impact our business and operating results.

Our business is subject to risks generally associated with doing business abroad, such as U.S. and foreign governmental regulation in the countries in which our contract manufacturer and component suppliers are located. Our operations and performance depend significantly on global, regional and U.S. economic and geopolitical conditions. For example, there has been discussion and dialogue regarding potential significant changes to U.S. trade policies, legislation, treaties and tariffs. For example, in November 2018, the United States, Mexico, and Canada signed the United States-Mexico-Canada Agreement ("USMCA") which supersedes the North American Free Trade Agreement. The USMCA has been ratified by the respective legislatures of each of the three countries. Congress approved the USMCA in the United States-Mexico-Canada Agreement Implementation Act (H.R.5430) in January 2020 (the "Act"), and the President signed the Act into law. The USMCA agreement entered into force on July 1, 2020, although there are some remaining issues with respect to ensuring that Mexico's and Canada's laws and regulations to ensure that both are fully in compliance with the USMCA obligations and commitments, and there may be further changes to interim regulations regarding customs procedures, rules of origin, and other provisions that could affect products sourced from Mexico or Canada, and their eligibility for duty-free entry into the U.S., Mexican, and Canadian markets.

The previous U.S. Administration threatened tougher trade terms with China, the European Union, and other countries, including the imposition of substantially higher U.S. Section 301 tariffs on roughly $320 billion of imports from China. In response, China imposed higher Chinese tariffs on a large amount of U.S. exports to China, which could affect the prices of U.S. origin parts or components of our products assembled in China. In January 2020, the U.S. and China signed a "Phase One" trade deal pursuant to which, among other things, the U.S. will modify its Section 301 tariff actions. As part of the Phase One agreement, the U.S. canceled additional Section 301 duties that were originally scheduled to go into effect in December 2019 on certain imported products, including certain of our products, and reduced the duties on certain other imported products, including televisions assembled in China by Roku TV brand partners, from 15% *ad valorem* to 7.5%. While the new U.S. Administration has promised a detailed review of U.S. policies toward China, it is unclear what the outcomes of the review will be or whether it could lead to additional U.S. tariffs, export controls, or sanctions.

At this time, it is unknown whether the Phase One deal will last or whether there will be sufficient progress on Phases Two and Three to lead to a further reduction in U.S.-China trade tensions: whether additional Section 301 tariffs will be imposed on Roku products, imported from China and, if so, how long U.S. tariffs on Chinese goods will remain in effect or whether even higher tariffs will be imposed, or new regulatory proposals to restrict trade will be adopted. There are also pressures on the new U.S. Administration to retaliate against China over China's actions in Hong Kong and Xinjiang Province, which could lead to additional U.S., Chinese and other tariffs, or a resumption of trade hostilities, exposing us to increased tariffs in the U.S. and Chinese markets. Finally, there are questions whether international trade agreements will be negotiated or existing free trade agreements re-negotiated; whether new trade or tariff actions will be announced by the new Administration; or the effect that any such action would have, either positively or negatively, on our industry or our business or licensees. If any new legislation and/or regulations are implemented, or if existing trade agreements are renegotiated or terminated, or if tariffs are imposed on foreign-sourced or U.S. goods, it may be inefficient and expensive for us to alter our business operations in order to adapt to or comply with such changes, and higher prices could depress consumer demand. Such operational changes could have a material adverse effect on our business, financial condition, results of operations or cash flows.

On January 15, 2021, the U.S. Trade Representative found that Vietnam's currency practices violate Section 301 of the Trade Act of 1974 but deferred any decision whether to take any specific actions in connection with its findings, leaving the decision whether to impose higher U.S. tariffs or other trade restrictions to the new U.S. Administration. This decision could lead to increased tariffs on products assembled in Vietnam, but none have been announced as of this time.

In addition, on October 2, 2020, the Office of the U.S. Trade Representative (USTR) initiated an investigation under Section 301 of the Trade Act of 1974 regarding Vietnam's acts, policies, and practices related to the import and use of illegally harvested timber. While no decision has been reached yet in this investigation, as with China, USTR's Section 301 investigations of Vietnam could lead to retaliatory tariffs on U.S. imports from Vietnam if the U.S. concerns cannot be resolved through negotiations. Such tariffs may not be limited to products directly involved in the acts, policies, and practices found to violate Section 301 (e.g. tropical timber) and thus could affect other, unrelated products, including those sourced by us or our suppliers and licensees.

Also, various countries, in addition to the United States, regulate the import and export of certain commodities, software, and technology, including import and export licensing requirements, and have enacted laws that could limit our ability to distribute our products or collaborate on technology with our commercial or strategic partners, or could limit our commercial and/or strategic partners' ability to implement our products in those countries. Changes in our products or future changes in export and import regulations may create delays in the introduction of our products in international markets, prevent our commercial and/or strategic partners with international operations from deploying our products globally or, in some cases, prevent the export or import of our products to certain countries, governments, or persons altogether. In particular, the U.S. government continues to expand export control restrictions on China and Hong Kong, which may limit the company's ability to collaborate with and transfer technology to partners in the region. Cross-border data transmissions are currently exempt from customs duties under the WTO's temporary e-commerce moratorium on customs duties on electronic transmissions, but the moratorium faces opposition from certain WTO Members when it comes up for renewal at the WTO Ministerial Meeting, which was originally scheduled for June 2020. It has been postponed because of COVID-19 but may take place in 2021. Other potential barriers include the further proliferation of digital services taxes which potentially could expose certain digital services to new taxes, U.S. or foreign sanctions or related sanctions legislation, increased export and import restrictions stemming from governmental policies or U.S.-China "de-coupling," or changes in the countries, governments, persons or technologies targeted by such regulations, restrictions, and sanctions. Any change in export or import regulations, the imposition of customs duties or other restrictions on intangible goods such as cross-border data flows, could result in decreased use of our products by, or in our decreased ability to export or sell our products to, existing or new customers in international markets or hamper our ability to source products, components, and parts from certain suppliers. Any decreased use of our products or limitation on our ability to export, import, or sell our products, or source parts and/or components, would harm our business.

Further, following the result of a referendum in 2016, the United Kingdom formally left the EU on January 31, 2020. The effects of Brexit have been and are expected to continue to be far-reaching. Brexit and the perceptions as to its impact may adversely affect business activity and economic conditions globally and could continue to contribute to instability in global financial markets. Brexit could also have the effect of disrupting the free movement of goods, services, and people between the United Kingdom and the EU. In addition, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations as the United Kingdom determines which EU laws to replace or replicate. The full effects of Brexit are uncertain. Given these possibilities and others we may not anticipate, as well as the lack of comparable precedent, the full extent to which our business, results of operations, and financial condition could be adversely affected by Brexit is uncertain.

The supply chains of our contract manufacturers and many of our licensees may source products, parts or components from China and other countries in the Asia-Pacific region. There are many uncertainties around the COVID-19 pandemic, including scientific and health issues, the unknown duration and extent of economic disruption in China and other markets in the region, and the impact on the Chinese, U.S., and global economies. As a result, the COVID-19 pandemic may result in further supply shortages of our products or our licensees' products, and delays in shipping and transportation services that negatively impact our ability or our licensees' ability to import, export, ship, or sell streaming devices to customers in U.S. and international markets. Any decrease, limitations or delays on our or our licensees' ability to produce, import, export, ship, or sell our streaming devices would harm our business.

United States or international rules that permit ISPs to limit internet data consumption by users, including unreasonable discrimination in the provision of broadband internet access services, could harm our business.

Laws, regulations or court rulings that adversely affect the popularity or growth in use of the internet, including decisions that undermine open and neutrally administered internet access, could decrease customer demand for our service offerings, may impose additional burdens on us or could cause us to incur additional expenses or alter our business model.

In February 2015, the FCC adopted open internet rules intended to protect the ability of consumers and content producers to send and receive non-harmful, lawful information on the internet, known as the Open Internet Order. The Open Internet Order prohibited broadband internet access service providers from: (i) blocking access to legal content, applications, services or non-harmful devices; (ii) throttling, impairing or degrading performance based on content, applications, services or non-harmful devices; and (iii) charging more for favorable delivery of content or favoring self-provisioned content over third-party content (collectively, the "prohibited activities"). The Open Internet Order also prohibited broadband internet access service providers from unreasonably interfering with consumers' ability to select, access and use the lawful content, applications, services or devices of their choosing as well as edge providers' ability to make lawful content, applications, services or devices available to consumers.

In January 2018, the FCC released a new order, known as the Restoring Internet Freedom Order (the "Order"), that repealed most of the blocking, throttling, and paid prioritization restrictions adopted in the Open Internet Order. The Order reclassified broadband internet access service as a non-common carrier "information service" and repealed rules that had prohibited broadband internet access service providers from conducting the "prohibited activities" but continued to require broadband internet access service providers to be transparent about their policies and network management practices, and subjected discriminatory practices to case-by-case assessment under antitrust and consumer protection laws. Most portions of the Order went into effect in April 2018 and the remainder went into effect in June 2018. Numerous judicial challenges to the Order were filed, and in October 2019, the Court of Appeals for the District of Columbia Circuit upheld nearly all of the Order, but reversed the FCC's decision to prohibit all state and local regulation targeted at broadband internet access service, requiring case by case determinations as to whether state and local regulation conflicts with the FCC's rules. The court also required the FCC to reexamine three issues from the Order where it found insufficient analysis but allowed the Order to remain in effect pending the FCC's review. The original parties were denied a rehearing by the full U.S. Court of Appeals for the D.C. Circuit in February 2020 and the period to seek review by the Supreme Court has ended. On remand, the FCC reaffirmed its existing approach in October 2020; however, four petitioners sought reconsideration of the FCC's decision in February 2021. The FCC, now newly organized following the inauguration of President Joe Biden, has yet to issue a decision in response to these petitions. To the extent the courts, the agencies or the states do not uphold or adopt sufficient safeguards to protect against discriminatory conduct, network operators may seek to extract fees from us or our content publishers to deliver our traffic or otherwise engage in blocking, throttling or other discriminatory practices, and our business could be harmed.

Several states have adopted or are considering network neutrality legislation or regulation. For example, California's legislation codifies portions of the FCC's rescinded Open Internet Order. The U.S. Department of Justice filed suit in September 2018 to block implementation of the California law, and the California Attorney General agreed to delay implementation of the state law until the litigation is resolved. While the Department of Justice withdrew its challenge of the California net neutrality law in February 2021, the status of state net neutrality legislation remains uncertain because several broadband service provider trade associations also have sued California to invalidate its net neutrality law on grounds that the law is preempted by the Order, among other claims. Several states in addition to California have enacted net neutrality legislation and several governors have signed executive orders requiring broadband internet access service providers contracting with state agencies to adhere to network neutrality principles. The regulatory framework for network neutrality thus remains unsettled and is subject to ongoing federal litigation as well as federal and state legislative and regulatory activity.

As we expand internationally, government regulation protecting the non-discriminatory provision of internet access may be nascent or non-existent. In those markets where regulatory safeguards against unreasonable discrimination are nascent or non-existent and where local network operators possess substantial market power, we could experience anti-competitive practices that could impede our growth, cause us to incur additional expenses or otherwise harm our business. Future regulations or changes in laws and regulations or their existing interpretations or applications could also hinder our operational flexibility, raise compliance costs and result in additional liabilities for us, which may harm our business.

Broadband internet providers are subject to government regulation and enforcement actions, and changes in current or future laws, regulations or enforcement actions that negatively impact our distributors or content publishers could harm our business.

Upon the effective date of the FCC's Restoring Internet Freedom Order, the FTC became the federal agency primarily responsible for regulating broadband privacy and data security in the United States. The FTC follows an enforcement-focused approach to regulating broadband privacy and security. Future FTC enforcement actions could cause us or our content publishers to alter advertising claims or alter or eliminate certain features or functionalities of our products or services which may harm our business. At the FCC, many broadband internet providers provide traditional telecommunications services that are subject to FCC and state rate regulation of intrastate telecommunications services, and are recipients of federal universal service fund payments, which are intended to subsidize telecommunications services in areas that are expensive to serve. Changes in rate regulations or in universal service funding rules, either at the federal or state level, could affect these broadband internet providers' revenue and capital spending plans. In addition, various international regulatory bodies have jurisdiction over non-United States broadband internet providers. The Nevada SPI Law and the CCPA also apply to broadband internet providers that do business in Nevada and California, respectively. To the extent these broadband internet providers are adversely affected by laws or regulations regarding their business, products or service offerings, our business could be harmed.

If we are found liable for content that is distributed through or advertising that is served through our platform, our business could be harmed.

As a distributor of content, we face potential liability for negligence, copyright, patent or trademark infringement, public performance royalties or other claims based on the nature and content of materials that we distribute. The Digital Millennium Copyright Act (the "DMCA") is intended, in part, to limit the liability of eligible service providers for caching, hosting or linking to, user content that includes materials that infringe copyrights or other rights. We rely on the protections provided by the DMCA in conducting our business. Similarly, Section 230 of the Communications Decency Act ("Section 230") protects online distribution platforms, such as ours, from actions taken under various laws that might otherwise impose liability on the platform provider for what content creators develop or the actions they take or inspire.

However, the DMCA, Section 230, and similar statutes and doctrines that rely on or may rely on in the future, in the United States or international jurisdiction where we may operate, are subject to uncertain judicial interpretation and regulatory and legislative amendments. For example, the FCC Chair under President Trump said the FCC would seek comment on a petition for rulemaking filed by the National Telecommunications and Information Administration that sought to limit the scope of protection provided to online distribution platforms under Section 230. Since then, however, the acting FCC Chair appointed by President Biden has said the FCC will not seek comment on the NTIA petition. Regulatory or legislative changes, whether in the United States or in international jurisdictions where we may operate, may ultimately require us to take a different approach towards content moderation on our platform, which could diminish the depth, breadth, and variety of content we offer and, in so doing, reduce our advertising revenue or user base.

Moreover, the DMCA and Section 230 provide protections primarily in the United States. If the rules around these statutes and doctrines change, if international jurisdictions refuse to apply similar protections or if a court were to disagree with our application of those rules to our business, we could incur liability and our business could be harmed. If we become liable for these types of claims as a result of the content that is streamed over or the advertisements that are served through our platform, then our business may suffer. Litigation to defend these claims could be costly and the expenses and damages arising from any liability could harm our business. Our insurance may not be adequate to cover these types of claims or any liability that may be imposed on us.

In addition, regardless of any legal protections that may limit our liability for the actions of third parties, we may be adversely impacted if copyright holders assert claims, or commence litigation, alleging copyright infringement against the developers of channels that are distributed on our platform. While our platform policies prohibit streaming content on our platform without distribution rights from the copyright holder, and we maintain processes and systems for the reporting and removal of infringing content, in certain instances our platform has been misused by unaffiliated third parties to unlawfully distribute copyrighted content. If content owners or distributors are influenced by the existence of types of claims or proceedings and are deterred from working with us as a consequence, this could impair our ability to maintain or expand our business, including through international expansion plans.

Our involvement in any such legal matters now or in the future, could cause us to incur significant legal expenses and other costs, and be disruptive to our business.

If we fail to maintain effective internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our Class A common stock may be adversely affected.

We are required to maintain internal control over financial reporting and to report any material weaknesses in such internal control. Section 404 of the Sarbanes-Oxley Act of 2002 ("Section 404") requires that we furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting. This assessment must include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. Our independent registered public accounting firm also attests to the effectiveness of our internal control over financial reporting. If we have a material weakness in our internal control over financial reporting in the future, we may not detect errors on a timely basis and our financial statements may be materially misstated. If we identify material weaknesses in our internal control over financial reporting, are unable to continue to comply with the requirements of Section 404 in a timely manner, are unable to assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, and the market price of our Class A common stock could be adversely affected. In addition, we could become subject to investigations by the stock exchange on which our Class A common stock is listed, the SEC, or other regulatory authorities, which could require additional financial and management resources.

Our financial results may be adversely affected by changes in accounting principles applicable to us.

U.S. GAAP are subject to interpretation by the FASB, the SEC, and other various bodies formed to promulgate and interpret appropriate accounting principles. A change in these principles or interpretations could have a significant effect on our reported results of operations and may even affect the reporting of transactions completed before the announcement or effectiveness of a change. For example, we adopted Accounting Standards Codification, *Revenue from Contracts with Customers (Topic 606)* ("ASC 606"), using the modified retrospective method. We applied the revenue standard to all contracts that were not completed as of January 1, 2018. We recognized the cumulative effect of initially applying the revenue standard as an adjustment to the opening balance of retained earnings. The comparative information has not been restated and continues to be reported under the accounting standards in effect for the prior periods. It is difficult to predict the impact of future changes to accounting principles or our accounting policies, any of which could harm our business.

If we fail to comply with the laws and regulations relating to the collection of sales tax and payment of income taxes in the various jurisdictions in which we do business, we could be exposed to unexpected costs, expenses, penalties and fees as a result of our noncompliance, which could harm our business.

By engaging in business activities in the United States, we become subject to various jurisdiction laws and regulations, including requirements to collect sales tax from our sales within those jurisdictions, and the payment of income taxes on revenue generated from activities in those jurisdictions. The laws and regulations governing the collection of sales tax for sales on our website and payment of income taxes are numerous, complex, and vary by jurisdiction. A successful assertion by one or more jurisdictions that we were required to collect sales or other taxes or to pay income taxes where we did not could result in substantial tax liabilities, fees and expenses, including substantial interest and penalty charges, which could harm our business.

New legislation that would change U.S. or foreign taxation of international business activities or other tax-reform policies could harm our business.

Reforming the taxation of international businesses has been a priority for U.S. politicians, and key members of the legislative and executive branches, and a wide variety of changes has been proposed or enacted. Certain changes to U.S. tax laws could affect the tax treatment of our foreign earnings, as well as cash and cash equivalent balances we maintain outside the United States. Additionally, any changes in the U.S. or foreign taxation of such activities may increase our worldwide effective tax rate and the amount of taxes we pay and harm our business.

Legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act ("TCJA"), as modified by legislation enacted on March 27, 2020, entitled the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act"), significantly reformed the Internal Revenue Code of 1986, as amended. The TCJA, as modified by the CARES Act, alters U.S. federal tax rates, imposes additional limitations on the deductibility of interest, allows for the expensing of certain capital expenditures, and puts into effect the migration from a "worldwide" system of taxation to a territorial system. Additionally, the TCJA, as modified by the CARES Act, has both positive and negative changes to the utilization of future net operating loss carryforwards. For example, U.S. federal NOLs incurred in taxable years beginning after December 31, 2017, can be carried forward indefinitely, but the deductibility of such U.S. federal NOLs in taxable years beginning after December 31, 2020 is limited to 80% of taxable income. The U.S. Department of Treasury has broad authority to issue regulations and interpretative guidance that may significantly impact how we will apply the law, which could affect our financial position and result of operations. It is uncertain if and to what extent various states will conform to the TCJA and the CARES Act.

In addition, an increasing number of jurisdictions are considering or have adopted laws or administrative practices that impose new tax measures, including revenue-based taxes targeting online commerce, digital services, streaming services and the remote selling of goods and services. These include new obligations to collect sales, consumption, value added, or other taxes on online marketplaces and remote sellers, or other requirements that may result in liability for third-party obligations. For example, Maryland recently passed legislation establishing a tax on certain advertising activities and in the EU, certain member states, and other countries have adopted or proposed taxes on digital advertising and marketplace service revenue. The OECD and G-20 are currently engaged in negotiations over an Inclusive Framework on "Base Erosion and Profit Shifting" (BEPS). The talks particularly target digital businesses, involve 135 countries, and could significantly alter the rules on international taxation of multinational enterprises. Our results of operations and cash flows could be adversely affected by additional taxes of this nature imposed on us prospectively or retroactively or additional taxes or penalties resulting from the failure to comply with any collection obligations. The United States has threatened to impose retaliatory duties under Section 301 of the Trade Act of 1974 on imports from countries that adopt DSTs, which could result in increased trade tensions and potential retaliation by foreign governments against U.S. digital services or technologies.

We continue to examine the impact these and other tax reforms may have on our business. The impact of these and other tax reforms is uncertain and one or more of these or similar measures could seriously harm our business.

We have been, are currently, and may in the future be subject to regulatory inquiries, investigations and proceedings, which could cause us to incur substantial costs or require us to change our business practices in a way that could seriously harm our business.

We have been, are currently, and may in the future be subject to investigations and inquiries from government entities. These investigations and inquiries, and our compliance with any associated regulatory orders or consent decrees, may require us to change our policies or practices, subject us to substantial monetary fines or other penalties or sanctions, result in increased operating costs, divert management's attention, harm our reputation, and require us to incur significant legal and other expenses, any of which could seriously harm our business. For example, in the past, we responded to requests for information made by staff from the SEC.

Risks Related to Ownership of Our Class A Common Stock

The dual class structure of our common stock as contained in our amended and restated certificate of incorporation has the effect of concentrating voting control with those stockholders who held our stock prior to our initial public offering, including our executive officers, employees and directors and their affiliates, and limiting your ability to influence corporate matters.

Our Class B common stock has 10 votes per share, and our Class A common stock has one vote per share. Our President and Chief Executive Officer, Anthony Wood, holds and controls the vote of a significant number of shares of our outstanding common stock, and therefore Mr. Wood will have significant influence over our management and affairs and over all matters requiring stockholder approval, including election of directors and significant corporate transactions, such as a merger or other sale of Roku or our assets, for the foreseeable future. If Mr. Wood's employment with us is terminated, he will continue to have the same influence over matters requiring stockholder approval.

In addition, the holders of Class B common stock collectively will continue to be able to control all matters submitted to our stockholders for approval even if their stock holdings represent less than 50% of the outstanding shares of our common stock. Because of the 10-to-1 voting ratio between our Class B and Class A common stock, the holders of our Class B common stock collectively will continue to control a majority of the combined voting power of our common stock even when the shares of Class B common stock represent as little as 10% of all outstanding shares of our Class A and Class B common stock. This concentrated control will limit your ability to influence corporate matters for the foreseeable future, and, as a result, the market price of our Class A common stock could be adversely affected.

Future transfers by holders of Class B common stock will generally result in those shares converting to Class A common stock, which will have the effect, over time, of increasing the relative voting power of those holders of Class B common stock who retain their shares in the long term. As a result of such transfers, as of December 31, 2020, Mr. Wood controls a majority of the combined voting power of our Class A and Class B common stock even though he only owns 13% of the outstanding Class A and Class B common stock. As a board member, Mr. Wood owes a fiduciary duty to our stockholders and must act in good faith in a manner he reasonably believes to be in the best interests of our stockholders. As a stockholder, even a controlling stockholder, Mr. Wood is entitled to vote his shares in his own interests, which may not always be in the interests of our stockholders generally. This concentrated control could delay, defer, or prevent a change of control, merger, consolidation, or sale of all or substantially all of our assets that our other stockholders support, or conversely this concentrated control could result in the consummation of such a transaction that our other stockholders do not support. This concentrated control could also discourage a potential investor from acquiring our Class A common stock, which has limited voting power relative to the Class B common stock and might harm the trading price of our Class A common stock.

We have not elected to take advantage of the "controlled company" exemption to the corporate governance rules for companies listed on The Nasdaq Global Select Market.

The trading price of our Class A common stock has been, and may continue to be, volatile, and the value of our Class A common stock may decline.

The market price of our Class A common stock has been and may continue to be subject to wide fluctuations in response to numerous factors, many of which are beyond our control, including:

- actual or anticipated fluctuations in our financial condition and operating results;
- changes in projected operational and financial results;
- loss by us of key content publishers;
- changes in laws or regulations applicable to our devices or platform;
- the commencement or conclusion of legal proceedings that involve us;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements of new products or services by us or our competitors;

- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or
- capital-raising activities or commitments;
- additions or departures of key personnel;
- issuance of new or updated research or reports by securities analysts;
- the use by investors or analysts of third-party data regarding our business that may not reflect our financial performance;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- sales of our Class A common stock;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares; and
- general economic and market conditions.

Furthermore, the stock markets frequently experience extreme price and volume fluctuations that affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, elections, interest rate changes or international currency fluctuations, may negatively impact the market price of our Class A common stock. As a result of such fluctuations, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future, which could result in substantial costs and divert our management's attention from other business concerns.

Future sales and issuances of our capital stock or rights to purchase capital stock could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to decline.

We may issue additional securities in the future and from time to time. Future sales and issuances of our capital stock or rights to purchase our capital stock could result in substantial dilution to our existing stockholders. We may sell or issue Class A common stock, convertible securities and other equity securities in one or more transactions at prices and in a manner as we may determine from time to time. If we sell any such securities in subsequent transactions, investors may be materially diluted. New investors in such subsequent transactions could gain rights, preferences and privileges senior to those of holders of our Class A common stock.

Future sales of shares by existing stockholders could cause our stock price to decline.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our Class A common stock in the public market, the trading price of our Class A common stock could decline. All of our outstanding Class A shares are eligible for sale in the public market, other than shares and options exercisable held by directors, executive officers and other affiliates that are subject to volume limitations under Rule 144 of the Securities Act. In addition, we have reserved shares for future issuance under our equity incentive plan. Our employees, other service providers, and directors are subject to our quarterly trading window, which generally opens at the start of the second full trading day after the public dissemination of our annual or quarterly financial results and closes (i) with respect to the first, second and third quarter of each year, at the end of the fifteenth day of the last month of the such quarter and (ii) with respect to the fourth quarter of each year, at the end of the trading day on the Wednesday before Thanksgiving. These employees, service providers and directors may also sell shares during a closed window periods pursuant to trading plans that comply with the requirements of Rule 10b5-1(c)(1) under the Exchange Act. When these shares are issued and subsequently sold, it would be dilutive to existing stockholders and the trading price of our Class A common stock could decline.

If securities or industry analysts do not publish research or publish unfavorable research about our business or if they downgrade our stock, our stock price and trading volume could decline.

A limited number of equity research analysts provide research coverage of our Class A common stock, and we cannot assure you that such equity research analysts will adequately provide research coverage of our Class A common stock. A lack of adequate research coverage may adversely affect the liquidity and market price of our Class A common stock. If securities or industry analysts cover our company and one or more of these analysts downgrades our stock or issues other unfavorable commentary or research, the price of our Class A common stock could decline. If one or more equity research analysts cease coverage of our company, or fail to publish reports on us regularly, demand for our stock could decrease, which in turn could cause our stock price or trading volume to decline.

We incur costs and demands upon management as a result of complying with the laws and regulations affecting public companies in the United States, which may harm our business.

As a public company listed in the United States, we incur significant legal, accounting and other expenses. In addition, changing laws, regulations and standards relating to corporate governance and public disclosure, including regulations implemented by the SEC and The Nasdaq Global Select Market, may increase legal and financial compliance costs and make some activities more time consuming. These laws, regulations and standards are subject to varying interpretations and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If, notwithstanding our efforts, we fail to comply with new laws, regulations and standards, regulatory authorities may initiate legal proceedings against us, and our business may be harmed.

Failure to comply with these rules might also make it more difficult for us to obtain certain types of insurance, including director and officer liability insurance, and we might be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our Board of Directors, on committees of our Board of Directors or as members of senior management.

We do not intend to pay dividends in the foreseeable future.

We have never declared or paid any cash dividends on our Class A or Class B common stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings to grow our business and for general corporate purposes. Moreover, our outstanding Credit Agreement contains prohibitions on the payment of cash dividends on our capital stock. Accordingly, investors must rely on sales of their Class A common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

Provisions in our corporate charter documents and under Delaware law may prevent or frustrate attempts by our stockholders to change our management or hinder efforts to acquire a controlling interest in us, and the market price of our Class A common stock may be lower as a result.

There are provisions in our certificate of incorporation and bylaws that may make it difficult for a third-party to acquire, or attempt to acquire, control of Roku, even if a change in control was considered favorable by our stockholders.

Our charter documents also contain other provisions that could have an anti-takeover effect, such as:

- establishing a classified Board of Directors so that not all members of our Board of Directors are elected at one time;
- permitting the Board of Directors to establish the number of directors and fill any vacancies and newly created directorships;
- providing that directors may only be removed for cause;
- prohibiting cumulative voting for directors;
- requiring super-majority voting to amend some provisions in our certificate of incorporation and bylaws;
- authorizing the issuance of "blank check" preferred stock that our Board of Directors could use to implement a stockholder rights plan;
- eliminating the ability of stockholders to call special meetings of stockholders;
- prohibiting stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders; and
- reflecting our two classes of common stock as described above.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibit a person who owns 15% or more of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. Any provision in our certificate of incorporation or our bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our Class A common stock and could also affect the price that some investors are willing to pay for our Class A common stock.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States of America will be the exclusive forums for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our bylaws;
- or any action asserting a claim against us that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims.

To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. In December 2018, the Delaware Chancery Court issued a ruling invalidating such provision, which we appealed to the Supreme Court of the State of Delaware. In March 2020, the Supreme Court of the State of Delaware reversed the ruling of the Delaware Chancery Court and held that the federal forum provision in our amended and restated certificate of incorporation is facially valid.

While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

These exclusive-forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for certain disputes with us or our directors, officers or other employees, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive-forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving such action in other jurisdictions, all of which could harm our business.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters are currently located in San Jose, California under a lease that expires in September 2030. We use this space for sales, research and development and administrative purposes. In addition, we lease various office and shared work spaces throughout the United States and internationally. We believe that our facilities are suitable to meet our current needs.

Item 3. Legal Proceedings

Information with respect to this item may be found in Note 12 to the consolidated financial statements in Item 8 of this Report, which is incorporated herein by reference.

Item 4. Mine Safety Disclosures

None

PART II

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

Market Information

Our Class A common stock is listed on The Nasdaq Global Select Market under the ticker symbol "ROKU." Our Class B common stock is not listed or traded on any exchange.

Holders of Record

As of January 31, 2021, there were 62 stockholders of record of our Class A common stock. There were significantly more beneficial owners of our Class A common stock. As of January 31, 2021, there were approximately 22 stockholders of record of our Class B common stock.

Dividend Policy

We have never declared or paid any dividends on our Class A or Class B common stock. We currently intend to retain all available funds and any future earnings for use in our business and therefore we do not anticipate declaring or paying any cash dividends in the foreseeable future. The terms of our Credit Agreement also restrict our ability to pay dividends, and we may also enter into credit agreements or other borrowing arrangements in the future that will restrict our ability to declare or pay cash dividends on our capital stock.

Sale of Unregistered Securities and Use of Proceeds

None.

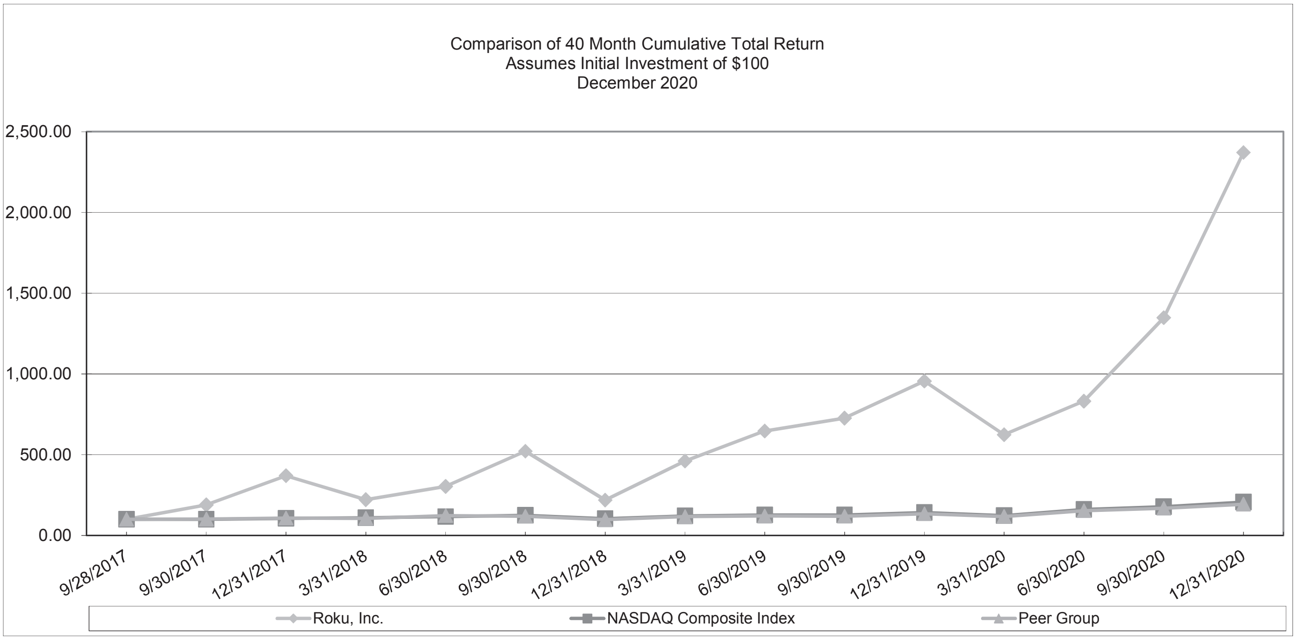
Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Stock Performance Graphs and Cumulative Total Return

The following graph shows the cumulative total stockholder return of an investment of $100 in cash from September 29, 2017 (the date our Class A common stock commenced trading on The Nasdaq Global Select Market) through December 31, 2020, for (i) our Class A common stock, (ii) the Nasdaq Composite Index and (iii) the Peer Group of companies. Because no published index of comparable player and platform companies is currently available, we have used Peer Group of companies for the purposes of this graph in accordance with the requirements of the SEC. The Peer Group is made up of Facebook, Inc., Alphabet, Inc., Logitech International S.A., Netflix, Inc., Snap, Inc., Twitter, Inc., Yelp, Inc. and Zillow Group, Inc. Not all of the companies included in Peer Group participate in all the lines of business in which we are engaged, and some of the companies are engaged in lines of business in which we do not participate. Additionally, the market capitalization of some of the companies included in the Peer Group are different from ours.

Pursuant to applicable SEC rules, all values assume reinvestment of the full amount of all dividends, however no dividends have been declared on our Class A common stock or Class B common stock to date. The stockholder return shown on the graph below is not necessarily indicative of future performance, and we do not make or endorse any predictions as to future stockholder returns.



Company / Index	Sep-17	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	Dec-20
Roku, Inc.	$ 100	$ 190	$ 370	$ 222	$ 304	$ 522	$ 219	$ 461	$ 647	$ 727	$ 956	$ 625	$ 832	$1,348	$2,371
Nasdaq Composite Index	$ 100	$ 101	$ 107	$ 110	$ 117	$ 126	$ 104	$ 122	$ 126	$ 127	$ 142	$ 123	$ 160	$ 179	$ 206
Peer Group	$ 100	$ 101	$ 107	$ 107	$ 124	$ 119	$ 98	$ 117	$ 121	$ 120	$ 134	$ 119	$ 153	$ 169	$ 193

The information under “Stock Performance Graphs and Cumulative Total Return” is not deemed to be “soliciting material” or “filed” with the SEC or subject to Regulation 14A or 14C, or to the liabilities of Section 18 of the Exchange Act and is not to be incorporated by reference in any filing of the Company under the Securities Act, or the Exchange Act, whether made before or after the date of this Annual Report on Form 10-K and irrespective of any general incorporation language in those filings.

Equity Compensation Plan Information

The following table summarizes information about our equity compensation plans as of December 31, 2020.

Plan Category	Number of securities to be issued upon exercise of outstanding options and awards	Weighted average exercise price of outstanding options (1)	Number of securities remaining available for future issuances under equity compensation plans (excluding securities in column (a))
	(a)	(b)	(c)
	(in thousands, except per share amount)		
Equity compensation plans approved by security holders [2]	13,088	$ 26.19	26,509
Equity compensation plans not approved by security holders	—	—	—
Total	**13,088**	**$ 26.19**	**26,509**

(1) Restricted stock units have been excluded for purposes of computing weighted average exercise prices in column (b) as they do not have an exercise price.

(2) The number of securities remaining available for future issuance in column (c) includes 21,420 shares of Class A common stock, available for issuance under our 2017 Equity Incentive Plan (the "2017 Plan") in column (a) and, includes 5,089 shares of Class A common stock available for issuance under our 2017 Employee Stock Purchase Plan. The number of shares authorized for issuance under the 2017 Plan are subject to an annual increase.

Item 6. Selected Financial Data

The selected consolidated financial data below should be read in conjunction with the Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations and our consolidated financial statements and related notes included in Item 8 of this Report.

The consolidated statements of operations data for the years ended December 31, 2020, 2019 and 2018 and the consolidated balance sheets data as of December 31, 2020 and 2019 are derived from our audited financial statements appearing in Item 8 of this Report. The consolidated statements of operations data for the year ended December 31, 2017 and 2016 and the consolidated balance sheets data as of December 31, 2018, 2017 and 2016 are derived from audited financial statements not included in this Report. Our historical results are not necessarily indicative of the results that may be expected in any future period.

In 2017, the Company changed the fiscal year-end to match the calendar year-end. Prior to 2017, the Company's fiscal year was the 52- or 53-week period that ended on the last Saturday of December. Fiscal year 2016 ended on December 31, 2016 and spanned 53 weeks.

	Years Ended December 31,				
	2020 (1) (2)	2019 (1) (2)	2018 (1)	2017	2016
	(in thousands, except per share data)				
Consolidated Statements of Operations Data:					
Total net revenue	$ 1,778,388	$ 1,128,921	$ 742,506	$ 512,763	$ 398,649
Net loss attributable to common stockholders	$ (17,507)	$ (59,937)	$ (8,857)	$ (63,509)	$ (42,758)
Net loss per share attributable to common stockholders— basic and diluted (3)	$ (0.14)	$ (0.52)	$ (0.08)	$ (2.24)	$ (9.01)
Weighted-average shares used in computing net loss per share attributable to common stockholders—basic and diluted	123,978	115,218	104,618	28,308	4,746
Consolidated Balance Sheets Data:					
Total assets	$ 2,270,542	$ 1,470,234	$ 464,997	$ 371,897	$ 179,078
Total long-term liabilities (4)	$ 422,206	$ 413,507	$ 26,342	$ 56,360	$ 43,217

(1) We adopted the guidance in *Revenue from Contracts (Topic 606)* using the modified retrospective method effective January 1, 2018. Accordingly, the consolidated statement of operations for the years ended December 31, 2020, 2019 and 2018 reflect the impact of this adoption.

(2) We adopted the guidance in *Leases (Topic 842)* using the optional transition method effective January 1, 2019. Accordingly, the consolidated statement of operations and consolidated balance sheets for the year ended December 31, 2020 and 2019 reflects the impact of this adoption.

(3) See Note 16 to the consolidated financial statements in Item 8 of this Report, for an explanation of the calculations of basic and diluted net loss per common share.

(4) Total long-term liabilities include non-current portions of debt, operating lease liabilities, deferred revenue, other long-term liabilities and preferred stock warrant liability.

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the consolidated financial statements and related notes included in Item 8 of this Report. In addition to historical financial information, the following discussion contains forward-looking statements that reflect our plans, estimates, beliefs, and expectations, and involve risks and uncertainties. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Report on Form 10-K, particularly in the section titled Item 1A. Risk Factors and the Note Regarding Forward-Looking Statements.

This section of this Form 10-K generally discusses 2020 and 2019 items and year-to-year comparisons between 2020 and 2019. Discussions of 2018 items and year-to-year comparisons between 2019 and 2018 that are not included in this Form 10-K can be found in Management's Discussion and Analysis of Financial Condition and Results of Operations in Part II, Item 7 of the Company's Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on March 2, 2020.

Overview

We operate in two revenue segments: the platform segment and the player segment. Platform revenue is generated from the sale of digital advertising and related services, content distribution services, subscription and transaction revenue shares, Premium Subscriptions, billing services, sale of branded channel buttons on remote controls and licensing arrangements with service operators and TV brands.

Player revenue is generated primarily from the sale of streaming players. We expect to continue to manage the average selling prices (“ASP”) of our streaming players to increase our active accounts. As a result, player revenues may not increase as they have historically. We expect that the tradeoff from player gross profit to grow active accounts will result in increased platform monetization and gross profit.

COVID-19 Update

The widespread global impact from the outbreak and spread of the novel strain of coronavirus referred to as COVID-19, which was declared a pandemic by the World Health Organization in March 2020, continued through the end of 2020. Precautionary measures to slow down the spread of the virus that were put in place by governmental authorities had eased in many locations but were re-instated in many geographies during the fourth quarter. We continue to have the majority of our workforce work from home to protect the health and safety of our employees and travel has been severely curtailed. The COVID-19 pandemic, and the resulting precautionary measures, have caused, and are expected to continue to cause, economic uncertainty both in the U.S. and globally as well as significant volatility in, and disruption to, financial markets.

During the fourth quarter of 2020, the ongoing COVID-19 pandemic continued to accelerate the shift of TV viewing away from traditional pay TV to streaming TV resulting in a faster growth of our active accounts and an increase in streaming hours. Although the growth in streaming hours per account moderated during the third quarter, streaming hours per account accelerated again during the fourth quarter to 17.0 billion hours. Despite advertising slowdown during the second quarter that we experience as a result of the COVID-19 pandemic, during the fourth quarter we had strong platform revenue growth driven by advertising spend and the expansion of content distribution partnerships. We believe advertising budgets will continue to shift from traditional linear TV to streaming TV and that we will benefit from this shift due to our advanced advertising capabilities. Major content publishers continue to re-organize around streaming and as a result, our content distribution business has benefited as our rapid rate of active accounts growth was accompanied by strong consumer demand for ad-supported viewing, subscription services and premium movie rentals. While we have experienced an increase in TV streaming during the COVID-19 pandemic and our business generally has generally, there can be no assurance that these patterns will continue into 2021.

Despite the adverse impact COVID-19 pandemic has had on global supply chains, we have largely been able to maintain inventory of our players, audio products and accessories in stock at retailers and online stores. During the fourth quarter, player sales moderated due to the impact of ongoing COVID-19 pandemic restrictions and ongoing economic uncertainty on holiday sales and consumer demand. While our player and Roku TV model sales have remained strong during the COVID-19 pandemic, there can be no assurance that these patterns will continue throughout the pandemic or beyond.

Although the COVID-19 pandemic's impact on our future operations and financial performance remains uncertain, we are continuing to monitor our operating expenses and capital expenditures and are committed to investing in strategic areas to grow our business and extend our competitive advantages.

Key Performance Metrics

The key performance metrics we use to evaluate our business, measure our performance, develop financial forecasts and make strategic decisions are gross profit, active accounts, streaming hours, and ARPU.

Gross Profit

We use gross profit as the primary metric to measure the performance of our business because we have two revenue segments that have different margin profiles, and we aim to maximize our higher margin platform revenue from our active accounts as they stream content on our platform. The majority of our gross profit is generated from our platform segment.

Our gross profit was $808.2 million and $495.2 million for the years ended December 31, 2020 and 2019, respectively.

Active Accounts

We believe that the number of active accounts is a relevant measure to gauge the size of our user base. We define active accounts as the number of distinct user accounts that have streamed content on our platform within the last 30 days of the period. Users who streamed content from The Roku Channel only on non-Roku platforms are not included in this metric. The number of active accounts also does not correspond to the number of unique individuals who actively utilize our platform, or the number of devices associated with an account. For example, a single account may be used by more than one individual, such as a family, and one account may be used on multiple streaming devices.

We had 51.2 million and 36.9 million active accounts as of December 31, 2020 and 2019, respectively. During 2020, the fastest growing source of new accounts was licensing arrangements with our Roku TV brand partners and other service operators, which collectively accounted for 62% of new accounts, up from 56% in 2019.

Hours Streamed

We believe the number of streaming hours on our platform is an effective measure of user engagement and that the growth in the number of hours of content streamed across our platform reflects our success in addressing the growing user demand for TV streaming. We define streaming hours as the aggregate amount of time streaming devices stream content on our platform in a given period. Hours streamed on non-Roku platforms are not included in this metric. We report streaming hours on a calendar basis.

Additionally, we believe that over time, increasing user engagement on our streaming platform increases our platform monetization because we earn platform revenue from various forms of user engagement, including advertising, revenue shares from subscriptions and transactional video on-demand. However, our revenue from content publishers is not tied to the hours streamed on their streaming channels, and the number of streaming hours does not correlate to revenue earned from such content publishers or ARPU on a period-by-period basis. Moreover, streaming hours on our platform are measured whenever a Roku player or a Roku TV is streaming content, whether a viewer is actively watching or not. For example, if a Roku player is connected to a TV, and the viewer turns off the TV, steps away or falls asleep and does not stop or pause the player, then the particular streaming channel may auto-play subsequent content for a period of time determined by the streaming channel. We believe that this also occurs across a wide variety of non-Roku streaming devices and other set-top boxes.

During the first quarter of 2020, we completed the deployment across all of our devices of a new Roku OS feature that is designed to identify when content has been continuously streaming on a channel for an extended period of time without user interaction. This feature, which we refer to as "Are you still watching," periodically prompts the user to confirm that they are still watching the selected channel and closes the channel if the user does not respond affirmatively. We believe that the implementation of this feature across the Roku platform benefits us, our customers, channel partners and advertisers. Some of our leading channel partners, including Netflix, also have implemented similar features within their channels. This Roku OS feature supplements these channel features. This feature has not had and is not expected to have a material impact on our future financial performance.

We streamed 58.7 billion and 37.8 billion hours during the years ended December 31, 2020 and 2019, respectively.

Note About Our Streaming Hours Adjustments

To calculate and report our streaming hours, we utilize data from event logs generated by the firmware running on the Roku devices that are recorded in a central database. The event information (play, pause, stop, time counts, etc.) is generated by the firmware running on the Roku streaming devices, and event data is transmitted to our central database at regular intervals when a device is connected to the internet. Pause time is not intended to be included in streaming hours.

During the second quarter of 2020 we discovered that some pause time was inadvertently included in the streaming hours information recorded in our central database. Upon discovering these errors in the log data, we promptly reviewed and analyzed the issue utilizing our firmware, data engineering and core analytics teams. We concluded that certain past Roku OS releases inadvertently caused the logging errors. The error rates varied over time and across different types of devices and firmware versions. As a result, we reported higher streaming hours and streaming hours growth rates for the affected periods than we would have if all pause time had been excluded from streaming hours as we had intended. Neither these logging errors, nor the resulting adjustments that we made to our streaming hours calculations, has had any impact on our financial results, and do not require us to revise any of our previously reported key operating metrics other than streaming hours.

The affected log data was for the periods from February 2016 to August 2020. After adjusting for logging errors, we estimate that our streaming hours were, on average, approximately 0.5% lower than previously reported for the period January 2017 through September 2018, and approximately 5.8% lower for the period October 2018 through March 2020.

By the end of August 2020, we fully deployed a software update that addressed the root cause of the pause time logging errors and prevented them from continuing.

The roll out of the "Are you still watching" feature had no impact on the adjustments we made to our streaming hours calculations. While our revenue from content publishers is not based on the hours streamed on their streaming channels, and the number of streaming hours does not directly correlate to revenue earned from such content publishers or ARPU on a period-by-period basis; we believe that the growth in the number of hours of content streamed across our platform reflects our success in addressing the growing user demand for TV streaming. After adjusting our streaming hours as discussed above, our estimated year-over-year streaming hour growth rates for fiscal year 2018 versus fiscal year 2017, fiscal year 2019 versus fiscal year 2018 and the first quarter of 2020 versus the first quarter of 2019 were 60.5%, 59.3% and 46.8%, respectively. The estimated year-over-year streaming hour growth rate for the second quarter of 2020 versus the second quarter of 2019 was 65%.

The following table presents the estimated impacts on streaming hours (in billions) for periods from January 1, 2017 through March 31, 2020 and streaming hours growth rates on a year-over-year ("YoY") basis by quarter for periods from January 1, 2018 through March 31, 2020 and annually for fiscal year 2018 and 2019. Revised streaming hours for 2016 are not estimated and therefore revised 2017 YoY growth rates are not available.

Quarter	Published SHs	Revised SHs	SHs % Delta	Published YoY	Revised YoY
2017 Q1	3.3B	3.2B	-0.5%	63.4%	NA
2017 Q2	3.5B	3.5B	-0.4%	60.0%	NA
2017 Q3	3.8B	3.8B	-0.4%	57.8%	NA
2017 Q4	4.3B	4.3B	-0.2%	55.3%	NA
2018 Q1	5.1B	5.1B	-0.5%	56.0%	56.1%
2018 Q2	5.5B	5.4B	-0.5%	57.2%	57.0%
2018 Q3	6.2B	6.1B	-0.7%	62.7%	62.1%
2018 Q4	7.3B	7.1B	-2.2%	68.6%	65.2%
2019 Q1	8.9B	8.4B	-5.4%	74.1%	65.5%
2019 Q2	9.4B	8.8B	-6.0%	72.1%	62.6%
2019 Q3	10.3B	9.6B	-6.5%	67.6%	57.9%
2019 Q4	11.7B	10.9B	-6.3%	60.2%	53.7%
2020 Q1	13.2B	12.3B	-7.0%	49.3%	46.8%

Year	Published SHs	Revised SHs	SHs % Delta	Published YoY	Revised YoY
2017	14.8B	14.8B	-0.4%	58.8%	NA
2018	24.0B	23.7B	-1.1%	61.7%	60.5%
2019	40.3B	37.8B	-6.1%	67.8%	59.3%

Average Revenue per User

We measure our platform monetization progress with ARPU, which we believe represents the inherent value of our business. We define ARPU as our platform revenue for the trailing four quarters divided by the average of the number of active accounts at the end of the current period and the end of the corresponding period in the prior year. ARPU measures the rate at which we are monetizing our active account base and the progress of our platform business.

ARPU was $28.76 as of December 31, 2020 as compared to $23.14 as of December 31, 2019.

Factors Affecting Our Performance

Rate of TV streaming and advertising shift to OTT

Consumers have significantly shifted their TV viewing behavior, and we believe that someday all TV content will be streamed. We also believe this presents a large market opportunity for digital advertising. This shift in viewing behavior is a critical component of our business model because our platform revenue and player revenue, as well as our overall expense structure, is dependent on this shift. In addition, the number of hours streamed on our platform is a critical element of our business because user engagement with our platform generates our advertising inventory and determines our advertising sell through.

User acquisition strategy

We acquire users through three primary ways: our TV brand partners sell Roku TVs through our Roku TV licensing program, we sell streaming players, and we have licensing relationships with service operators. We monetize our user base through platform revenue. Player revenue and player gross profit have decreased, and may continue to decrease, over time as we strategically aim to acquire new users through the sale of lower priced streaming players.

Ability to monetize users and streaming hours

Our business model is to increase both active accounts and streaming hours while growing revenue and gross profit through the monetization of our streaming platform. We believe we have a significant opportunity to grow platform revenue as we further monetize our users' engagement. Our platform makes it easy for content publishers to distribute and monetize their streaming content through three primary business models: transaction video on demand ("TVOD") that includes channels that offer a la carte movie purchases or rentals, subscription video on demand ("SVOD") that includes subscriptions to individual video on demand channels and so-called virtual multichannel video programming distribution services, and advertising supported video on demand ("AVOD") that includes channels that do not charge a subscription fee to users. We generate revenue from TVOD and SVOD channels from various forms of revenue sharing arrangements. Our revenue sharing arrangements generally apply to new subscriptions for accounts that sign up for new services and to movie rentals or purchases for TVOD. Through our platform we also are able to offer content partners with billing services which support in-channel purchases including movie purchases, rentals, and subscriptions.

Revenue from the distribution of AVOD channels is generated through the sale of advertising within the channel. We are increasing the monetization of these streaming hours by expanding our advertising capabilities both on and off our platform. We intend to continue to leverage our data and analytics to deliver relevant advertising and improve the ability of our advertisers to optimize their campaigns and measure their results. We also plan to continue to expand our direct sales teams to increase the number of advertisers who use our services. The Roku Channel offers free, ad-supported access for users to a selection of films, television series and other content. The Roku Channel is a source of digital advertising inventory under our control and is another way that we connect content publishers with users. The Roku Channel provides customers with free access to over 50,000 titles, including hit Hollywood movies, TV episodes, news channels and more and is rapidly becoming one of our leading sources of advertising inventory. In January 2019, we launched Premium Subscriptions within The Roku Channel, through which we resell ad-free premium content subscription services from providers such as Showtime, Starz, and Epix.

Continued investment in growth

We believe that our future performance will depend on the success of the investments in our business that we have made, and will continue to make, to improve the value for users, content publishers and advertisers on our platform. We must regularly update and enrich our platform to meet evolving consumer behavior and deliver a superior experience for our users, content publishers and advertisers. Further, it is important that we remain a platform for content delivery and invest to provide content publishers with best-in-class publishing tools and actionable audience insights. We must continue to innovate and invest in our advertising capabilities and technology so that we attract and encourage incremental advertising spend on our platform. Accordingly, we plan to continue investing in our business to enhance our competitive differentiation and seed future growth. In particular, these investments will include: Research and Development initiatives to bring new features, technology, and content to our platform; Sales and Marketing efforts to drive increased scale and engagement of our user base; and building out our General and Administrative infrastructure to support a global scale business.

Seasonality

In the fourth quarter of each calendar year, we generally generate significantly higher levels of revenue and gross profit from platform segment revenue and significantly higher levels of player segment revenue. For the years ended December 31, 2020 and 2019, fourth quarter revenue comprised 37% and 36% of our total net revenue, respectively, and fourth quarter gross profit comprised 38% and 33% of our total gross profit, respectively.

Components of Results of Operations

Revenue

Platform Revenue

We generate platform revenue from advertising sales and related services, subscription and transaction revenue sharing arrangements with partners, the sale of Premium Subscription services, sales of branded channel buttons on remote controls and licensing arrangements with service operators. Our first-party video ad inventory includes The Roku Channel, native display ads on our home screen and screen saver as well as ad inventory we obtain through our content distribution agreements with publishers. To supplement supply, we re-sell video inventory that we purchase from content publishers and, to a lesser extent, directly sell third-party inventory on a revenue share basis. To date, we have generated most of our platform revenue in the United States.

Player Revenue

We generate player revenue primarily from the sale of streaming players through consumer retail distribution channels, including major brick and mortar retailers, such as Best Buy and Walmart, and online retailers, including Amazon. We generate most of our player revenue in the United States. In our international markets, we primarily sell our players through wholesale distributors which, in turn, re-sell to retailers. We currently distribute our players in Canada, the United Kingdom, France, the Republic of Ireland, Mexico, Brazil and several other Latin American countries.

Player revenue also includes the sale of our audio products, including wireless speakers, smart soundbars and wireless subwoofers.

Cost of Revenue

Cost of Platform Revenue

Cost of platform revenue consists of costs associated with arrangements with content partners and publishers including advertising inventory and content or programming licensing fees. Cost of platform revenue also includes payment processing fees, allocated expenses associated with the delivery of our services including salaries, benefits and stock-based compensation for our operations and support teams, third-party cloud services and amortization of acquired technology.

Cost of Player Revenue

Cost of player revenue is comprised mostly of player manufacturing costs payable to our third-party contract manufacturer and technology licenses or royalty fees. Cost of player revenue also includes inbound and outbound freight, duty and logistics costs, third-party packaging and allocated overhead costs related to facilities and customer support, and salaries, benefits and stock-based compensation for operations personnel.

Operating and Other Expenses

Research and Development

Research and development expenses consist primarily of personnel-related costs, including salaries, benefits and stock-based compensation for our development teams as well as outsourced development fees. In addition, research and development expenses include allocated facilities and overhead costs. We expect research and development expenses to increase in absolute dollars as we continue to invest in the development of our platform, player and TV products, advertising products and other platform services.

Sales and Marketing

Sales and marketing expenses consist primarily of personnel-related costs, including salaries, benefits, commissions and stock-based compensation expense for our employees engaged in sales and sales support, marketing, communications, data science and analytics, business development, product management and partner and customer support functions. Sales and marketing expenses also include marketing, retail and merchandising costs and allocated facilities and overhead expenses. We expect sales and marketing expenses to increase in absolute dollars in future periods as we focus on growing active accounts, platform and player revenues, and expanding our business internationally.

General and Administrative

General and administrative expenses consist primarily of salaries, benefits and stock-based compensation for our executive, finance, legal, information technology, human resources and other administrative personnel. General and administrative expenses also include outside legal, accounting and other professional service fees as well as allocated facility expenses. We expect our general and administrative expenses to increase due to the expansion of our business and related infrastructure.

Other Income (Expense), Net

For the year ended December 31, 2020, other income (expense), net consists of interest income on cash and cash equivalents, interest expense that primarily includes interest on our Credit Facility (as defined in 'Liquidity and Capital Resources' below) and amortization of deferred debt costs, foreign currency re-measurement and transaction gains and losses. For the years ended December 31, 2019 and 2018, other income (expense), net consists of interest income on short-term investments and cash balances, interest expense that primarily includes amortization of deferred debt costs, foreign currency re-measurement and transaction gains and losses.

Income Tax (Benefit) Expense

Our income tax (benefit) expense consists primarily of income taxes in certain foreign jurisdictions where we conduct business and state income taxes in the United States. We have a valuation allowance for U.S. deferred tax assets, including net operating loss carryforwards and tax credits related primarily to research and development. We expect to maintain this valuation allowance for the foreseeable future.

Results of Operations

The following table sets forth selected consolidated statements of operations data as a percentage of total revenue for each of the periods indicated.

	Years Ended December 31,		
	2020	2019	2018
Net Revenue:			
Platform	71%	66%	56%
Player	29%	34%	44%
Total net revenue	100%	100%	100%
Cost of Revenue:			
Platform	28%	23%	16%
Player	27%	33%	39%
Total cost of revenue	55%	56%	55%
Gross Profit:			
Platform	43%	43%	40%
Player	2%	1%	5%
Total gross profit	45%	44%	45%
Operating Expenses:			
Research and development	20%	24%	23%
Sales and marketing	17%	16%	14%
General and administrative	10%	10%	10%
Total operating expenses	47%	50%	47%
Loss from Operations	(2)%	(6)%	(2)%
Other Income, Net:			
Other income, net	—%	1%	1%
Total other income, net	—%	1%	1%
Loss before income taxes	(2)%	(5)%	(1)%
Income tax (benefit) expense	—%	—%	—%
Net loss attributable to common stockholders	(2)%	(5)%	(1)%

Comparison of Years Ended December 31, 2020 and 2019

Net Revenue

	Years Ended December 31,			
	2020	2019	Change $	Change %
(in thousands, except percentages)				
Platform	$1,267,744	$ 740,776	$ 526,968	71%
Player	510,644	388,145	122,499	32%
Total Net Revenue	$1,778,388	$1,128,921	$ 649,467	58%

Platform

Platform revenue increased by $527.0 million, or 71%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019. The increase is mostly attributable to higher advertising revenues, including revenue from our demand-side platform, which we acquired from dataxu in November 2019. In 2020, we re-branded our demand-side platform as the OneView Ad Platform and integrated it with Roku-native identity, data and attribution tools. Platform revenues also increased due to higher content distribution and related transactional revenues, including from Premium Subscriptions.

Player

Player revenue increased by $122.5 million, or 32%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019, primarily due to an increase in the volume of streaming players sold in addition to increased revenues from the sale of audio products and accessories. During the year ended December 31, 2020, the volume of streaming players sold increased 28% as compared to the year ended December 31, 2019 offset by a 3% decrease in the average selling price of players. The increase in the volume of players sold was due to an increase in demand for lower priced models, namely the Roku Express player and the Roku Premiere player, and in part to consumers spending more time at home due to the COVID-19 pandemic.

Cost of Revenue

	Years Ended December 31,			
	2020	2019	Change $	Change %
(in thousands, except percentages)				
Cost of revenue:				
Platform	$ 503,177	$ 262,655	$ 240,522	92%
Player	466,992	371,042	95,950	26%
Total Cost of Revenue	$ 970,169	$ 633,697	$ 336,472	53%
Gross profit:				
Platform	$ 764,567	$ 478,121	$ 286,446	60%
Player	43,652	17,103	26,549	155%
Total Gross Profit	$ 808,219	$ 495,224	$ 312,995	63%

Platform

The cost of platform revenue increased by $240.5 million, or 92%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019. This increase is a result of higher advertising related costs including inventory acquisition costs, in addition to higher content licensing fees, programming fees and credit card processing fees totaling $215.3 million. Platform costs increased an additional $25.3 million due to increases in allocated personnel and operational overhead costs and amortization of acquired intangibles.

Gross profit for platform revenue increased by $286.4 million, or 60%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019, primarily driven by the overall growth in our platform revenues.

Player

The cost of player revenue increased by $96.0 million, or 26%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019. The cost of player revenue increased approximately $73.1 million due to an increase in the volume of players sold. Freight expenses increased by $14.2 million as a result of an increase in the volume of units sold as well as an increase in the overall cost of transportation. Packaging and other overhead costs increased by $8.7 million.

Gross profit for player revenue increased by $26.5 million, or 155%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019, driven by higher sales volumes of player products and accessories and lower direct manufacturing costs.

Operating Expenses

(in thousands, except percentages)	Years Ended December 31, 2020	2019	Change $	Change %
Research and development	$ 355,784	$ 265,011	$ 90,773	34%
Sales and marketing	299,457	178,855	120,602	67%
General and administrative	173,231	116,417	56,814	49%
Total Operating Expenses	$ 828,472	$ 560,283	$ 268,189	48%

Research and development

Research and development expenses increased by $90.8 million, or 34%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019. The increase was primarily due to increases in personnel-related costs of $65.5 million as a result of increased engineering headcount of 14% and related stock-based compensation, higher professional service and consulting fees of $27.8 million, and higher allocated facilities costs of $11.7 million offset by allocations of overheads to cost of platform and player revenue of $14.2 million.

Sales and marketing

Sales and marketing expenses increased by $120.6 million, or 67%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019. The increase was primarily due to increases in personnel-related costs of $61.9 million related to increased headcount of 15% and related stock-based compensation in sales and sales support, product management, marketing and business analytics to support efforts to grow our business. Other sales and marketing expenses include an increase of $42.2 million mainly due to increase in marketing, retail and merchandising costs, an increase of $10.6 million in higher facilities costs, an increase of $5.6 million in outside consulting expenses, and an increase of $3.7 million in other expenses primarily related to higher amortization of acquired intangible assets offset by a decrease of $3.4 million in travel expenses due to the COVID-19 pandemic.

General and administrative

General and administrative expenses increased by $56.8 million, or 49%, for the year ended December 31, 2020 as compared to the year ended December 31, 2019. The increase was primarily due to increases in personnel-related costs of $29.2 million related to increased headcount of 27% and related stock-based compensation, an increase of $16.1 million related to higher legal, consulting and professional service fees, an increase of $5.1 million related to higher facilities costs, an increase of $3.1 million in allowance for doubtful accounts primarily from adoption of accounting standard for credit losses, and a net increase of $3.3 million that includes various corporate expenses and overheads partly offset by a decrease in travel expenses due to the COVID-19 pandemic.

Other Income (Expenses), Net

(in thousands, except percentages)	Years Ended December 31, 2020	2019	Change $	Change %
Interest expense	$ (3,432)	$ (2,366)	$ (1,066)	45%
Other income (expense), net	5,233	6,506	(1,273)	(20)%
Total Other Income (Expense), Net	$ 1,801	$ 4,140	$ (2,339)	(56)%

Other income (expenses), net

Total other income (expense), net, decreased by $2.3 million during the year ended December 31, 2020 as compared to the year ended December 31, 2019. Interest expense, including amortization of deferred debt costs, was higher for the year ended December 31, 2020 due to higher level of borrowings under our Credit Facility as compared to the prior year. Other income, net was $1.3 million lower in the year ended December 31, 2020. Interest income declined $2.7 million for the year ended December 31, 2020 due to a significant drop in interest rates early in the year in reaction to the COVID-19 pandemic, which impacted our investment yields. This was offset by favorable foreign exchange totaling $1.4 million primarily related to the British Pound.

Income Tax (Benefit) Expenses

	Years Ended December 31,			
	2020	2019	Change $	Change %
(in thousands, except percentages)				
Income tax (benefit) expense	$ (945)	$ (982)	$ 37	(4)%

Income tax benefit

Income tax benefit arises from foreign income taxes and state income taxes in the United States.

Liquidity and Capital Resources

As of December 31, 2020, we had cash and cash equivalents of $1,092.8 million. Approximately 1.2% of our cash was held outside the United States in accounts held by our foreign subsidiaries which are used to fund foreign operations.

Our primary sources of cash are receipts from platform and player revenue and proceeds from equity sales including equity issued pursuant to our employee stock option plans. The primary uses of cash are costs of revenue including third party manufacturing costs, costs to acquire advertising inventory, and content and programming license fees as well as operating expenses including payroll-related expenses, consulting and professional service fees, and facility and marketing expenses. Other uses of cash include purchases of property and equipment.

We have multi-year lease agreements for office space and incurred material expenses in 2020. We expect to continue to incur material expenses for facility and building related costs for our campus headquarters in San Jose, California as well as at other office locations in the U.S. and internationally. As our business and workforce continue to expand, we further expect ongoing purchases of computer systems and other investments in property and equipment. In addition, we may pursue merger and acquisition activities, including the acquisition of rights to programming and content assets that could materially impact our liquidity and capital resources.

We believe our existing cash and cash equivalents, cash flow from operations, and our undrawn available balance under our Credit Facility will be sufficient to meet our working capital requirements for at least the next twelve months. Our future capital requirements, the adequacy of available funds, and cash flows from operations could be affected by various risks and uncertainties, including, but not limited to, those detailed in Part I, Item 1A, Risk Factors and the effects of the COVD-19 pandemic. While the pandemic has not severely impacted our liquidity and capital resources to date, it has contributed to disruption and volatility in local economies and in capital and credit markets which could adversely affect our liquidity and capital resources in the future.

We may attempt to raise additional capital through the sale of equity securities or other financing arrangements. If we raise additional funds by issuing equity, the ownership of our existing stockholders will be diluted. Our Credit Agreement expires in February 2023. If we raise additional financing by the incurrence of additional indebtedness, we may be subject to fixed payment obligations and also to restrictive covenants.

At-the-Market Offering

On May 13, 2020, we entered into an Equity Distribution Agreement with Morgan Stanley & Co. LLC and Citigroup Global Markets Inc., as our sales agents, pursuant to which we sold an aggregate of 4.0 million shares of our Class A common stock and received gross proceeds of $504.0 million at an average selling price of $126.01 per share and incurred issuance costs of $6.8 million.

Senior Secured Term Loan A and Revolving Credit Facilities

On February 19, 2019 (the "Original Closing Date"), we entered into a Credit Agreement (the "Existing Credit Agreement") with Morgan Stanley Senior Funding, Inc. On May 3, 2019, (the "Closing Date"), the Existing Credit Agreement was amended pursuant to an Incremental Assumption and Amendment No. 1 (the "Amendment" and the Existing Credit Agreement as amended by the Amendment, the "Credit Agreement").

The Credit Agreement provides for (i) a four-year revolving credit facility in the aggregate principal amount of up to $100.0 million (the "Revolving Credit Facility"), (ii) a four-year delayed draw term loan A facility in the aggregate principal amount of up to $100.0 million (the "Term Loan A Facility") and (iii) an uncommitted incremental facility, subject to the satisfaction of certain financial and other conditions, in the amount of up to (v) $50.0 million, plus (w) 1.0x of our consolidated EBITDA for the most recently completed four fiscal quarter period, plus (x) an additional amount at our discretion, so long as, on a pro forma basis at the time of incurrence, our secured leverage ratio does not exceed 1.50 to 1.00, plus (y) voluntary prepayments of the Revolving Credit Facility and Term Loan A Facility to the extent accompanied by concurrent reductions to the applicable Credit Facility (together with the Revolving Credit Facility and the Term Loan A Facility, collectively, the "Credit Facility").

For our current borrowings, we have elected a Eurodollar borrowing with interest at a rate equal to the adjusted one-month LIBOR rate plus an applicable margin of 1.75% based on our secured leverage ratio. The borrowings under the facility mature or have to repaid in full by February 2023. Our obligations under the Credit Agreement are secured by substantially all of our assets. The Credit Agreement contains customary representations and warranties, customary affirmative and negative covenants, a financial covenant that is tested quarterly and requires us to maintain a certain adjusted quick ratio of at least 1.00 to 1.00, and customary events of default. As of December 31, 2020, we were in compliance with all of the covenants of the Credit Agreement. See Note 10 to the consolidated financial statements in Item 8 of this Report, for additional details regarding the Credit Agreement.

We had outstanding letters of credit of $30.8 million and $30.7 million as of December 31, 2020 and December 31, 2019, respectively, against the Revolving Credit Facility.

Cash Flows

The following table summarizes our cash flows for the periods presented (in thousands):

	Years Ended December 31,	
	2020	2019
Consolidated Statements of Cash Flows Data:		
Cash flows provided by operating activities	$ 148,192	$ 13,707
Cash flows used in investing activities	(81,324)	(110,295)
Cash flows provided by financing activities	509,048	458,328

Cash Flows from Operating Activities

Our operating activities provided cash of $148.2 million for the year ended December 31, 2020. Our net loss of $17.5 million for the year ended December 31, 2020 was adjusted by non-cash charges of $225.7 million comprising mainly of $134.1 million of stock-based compensation, $36.2 million of depreciation and amortization primarily on property and equipment and acquired intangible assets, $28.7 million of amortization of operating lease right-of-use assets, $22.4 million of amortization of capitalized licensed content assets and $3.8 million of provision for doubtful accounts. The changes in our operating assets and liabilities used cash of $60.0 million comprised of outflows of $196.0 million from an increase in accounts receivable primarily driven by higher sales volume in the last quarter, $4.2 million from increased inventory levels at the end of the year, $3.5 million from an increase in prepaid and other current assets due to an increase in contract assets, prepaid taxes and other general expenses, and $1.1 million from an increase in other long term assets. These outflows were offset by cash inflows by an increase of $103.2 million from an increase in accrued liabilities related to content publisher payables, marketing, retail and merchandising costs, advertising inventory costs and overall growth in the volume of business, $21.5 million from an increase in deferred revenue due to overall growth in the volume of business, $13.0 million from an increase in operating lease liabilities for new leases added during the year, $6.4 million from an increase in accounts payable, and $0.6 million from an increase in other long-term liabilities.

Our operating activities provided cash of $13.7 million for the year ended December 31, 2019. Our net loss of $59.9 million for the year ended December 31, 2019 was adjusted by non-cash charges of $127.9 million comprising mainly of $85.2 million of stock-based compensation and $15.7 million of depreciation and amortization primarily on property and equipment and acquired intangible assets, $22.3 million of amortization of operating right-of-use assets and $2.9 million of amortization of capitalized licensed content assets. The changes in our operating assets and liabilities used cash of $54.2 million comprised of outflows of $110.2 million from an increase in accounts receivable due to increased seasonal revenues in the fourth quarter, $14.1 million from increasing inventory levels, $10.6 million from a decrease in deferred revenue, $9.9 million from an increase in prepaid and other current assets due to an increase in prepaid contracts, marketing expenses and prepaid capital expenditure for new facilities, $3.0 million from a decrease in other long-term liabilities, and $3.0 million from an increase in other long-term assets. These outflows were offset by cash inflows of $74.5 million from an increase in accrued liabilities due to timing of payments, increased content publishers payables, and overall growth in the volume of business, $11.7 million from an increase in operating lease liabilities, $9.4 million from an increase in accounts payable, and $1.1 million from a decrease in deferred cost of revenue.

Cash Flow from Investing Activities

Our investing activities used cash of $81.3 million for the year ended December 31, 2020. The cash used comprised of $82.4 million for the purchase of property and equipment, which primarily related to expenditures on leasehold improvements related to expanding our facilities and other capital investments, partially offset by $1.1 million of cash received from proceeds from the resolution of purchase acquisition contingencies.

Our investing activities used cash of $110.3 million for the year ended December 31, 2019. The cash used comprised of $77.2 million for the purchase of property and equipment, which primarily related to expenditures on leasehold improvements related to expanding our facilities and other capital investments, $68.1 million related to the acquisition of dataxu, Inc., $12.4 million spent on the purchase of short-term investments, and $7.4 million related to the purchases of other intangible assets, partially offset by $54.8 million received from sales/maturities of short-term investments.

Cash Flow from Financing Activities

Our financing activities provided cash of $509.0 million for the year ended December 31, 2020. The cash was received mainly from net proceeds from the issuance of common stock through our at-the-market offering amounting to $497.2 million, net of offering costs and proceeds from the exercise of employee stock options of $16.8 million. We borrowed and repaid $69.3 million of our Revolving Credit Facility in addition to the repayments of $5.0 million on our Term Loan A during the year.

Our financing activities provided cash of $458.3 million for the year ended December 31, 2019. The cash was received mainly from net proceeds from the issuance of Class A common stock through our at-the-market offerings amounting to $330.5 million, net of offering costs, proceeds from borrowings amounting to $99.6 million, net of issuance costs, and proceeds from the exercise of employee stock options of $28.2 million.

Off-Balance Sheet Arrangements

We did not have any off-balance sheet arrangements during the years ended December 31, 2020 and 2019, as defined by applicable SEC rules and regulations.

Contractual Obligations

Our future minimum payments under our non-cancelable contractual obligations were as follows as of December 31, 2020 (in thousands):

	Payments Due by Period				
	Total	Less Than 1 Year	1 – 3 Years	3 – 5 Years	More Than 5 Years
Term Loan A Facility (1)	$ 95,000	$ 5,000	$ 90,000	$ —	$ —
Purchase commitments (2)	185,945	185,945	—	—	—
Operating lease obligations (3)	440,645	50,889	94,974	92,930	201,852
Other obligations (4)	70,990	42,574	26,376	2,040	—
Total	$ 792,580	$ 284,408	$ 211,350	$ 94,970	$ 201,852

(1) Represents the principal amount of Term Loan A Facility. For additional information regarding the terms of the debt and interest payable, see Note 10 to the consolidated financial statements in Item 8 of this Report.
(2) Represents commitments to purchase finished goods from our contract manufacturer and other inventory related items.
(3) Represents future minimum lease payments under operating leases.
(4) Represents commitments included in other non-cancelable arrangements like licensed content assets, advertising inventory costs and other platform services.

We rely on an outsourced supplier to manufacture, assemble and test our players and audio devices. Consistent with industry practices, we enter into firm, noncancelable, and unconditional purchase commitments to acquire products through a combination of purchase orders, supplier contracts, and open orders based on projected demand information. Our contract manufacturer sources components and builds our products based on these demand forecasts. Changes to projected demand or in the subsequent sales mix of our products, may result in us being committed to purchase excess inventory to satisfy these commitments.

The contractual commitment amounts in the table above are associated with agreements that are enforceable and legally binding. Obligations under contracts that we can cancel without a significant penalty are not included in the table above.

As we are unable to reasonably predict the timing of settlement of liabilities related to unrecognized tax benefits, net, the table does not include $29.2 million of such non-current liabilities not included in our consolidated balance sheets as of December 31, 2020.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses and related disclosures. These estimates and assumptions are affected by management’s application of accounting policies, as well as uncertainty in the current economic environment due to the ongoing COVID-19 pandemic. We evaluate our estimates and assumptions on an ongoing basis.

The critical accounting policies requiring estimates, assumptions and judgments that we believe have the most significant impact on our financial statements are described below.

Revenue Recognition

Our contracts with customers often include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations may require significant judgment.

Judgment is required to determine the stand-alone selling price (“SSP") for each distinct performance obligation. For performance obligations routinely sold separately, the SSP is determined by evaluating such stand-alone sales. For those performance obligations that are not routinely sold separately, we determine SSP using information that may include market conditions and other observable inputs.

To the extent platform services are part of multiple element arrangement, revenue recognition of each performance obligation in the estimated transaction price of a contract is based on the expected value for which a significant reversal of revenue is not expected to occur. The estimate of the variable consideration is based on the assessment of historical, current, and forecasted performance noted and expected from the performance obligation.

For the sale of third-party goods and services, we evaluate whether we are the principal, and report revenues on a gross basis, or an agent, and report revenues on a net basis. In this assessment, we consider if we obtain control of the specified goods or services before they are transferred to the customer, as well as other indicators such as the party primarily responsible for fulfillment, inventory risk, and discretion in establishing price.

Our player revenue includes allowances for returns and sales incentives in the estimated transaction price. The estimates for returns and sales incentives are based on historical experience and anticipated performance. We provide unspecified upgrades and updates to our player end users. We record the allocated value of these as deferred revenue and recognize it ratably on a time elapsed basis over the estimated economic life of the associated players. Shipping charges billed to customers are included in revenue and the related shipping costs are included in cost of revenue.

Business Combinations

We recognize, separately from goodwill, identifiable assets and liabilities acquired in a business combination at fair value on the date of acquisition. We use our best estimates and assumptions to accurately assign fair value to the tangible and identifiable intangible assets acquired and liabilities assumed at the acquisition date as well as the useful lives of those acquired intangible assets. Examples of critical estimates in valuing certain of the intangible assets and goodwill we have acquired include, but are not limited to, future expected cash inflows and outflows, expected technology life cycle, attrition rates of customers, and discount rates. We estimate the useful lives of the intangible assets based on the expected period over which we anticipate generating economic benefit from the asset. Unanticipated events and circumstances may occur that may affect the accuracy or validity of such assumptions, estimates or actual results.

While we use our best estimates and assumptions as part of the purchase price allocation process to accurately value assets and liabilities acquired, these estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we record adjustments to the assets and liabilities acquired, with the corresponding offset to goodwill to the extent we identify adjustments to the preliminary purchase price allocation. Upon the conclusion of the measurement period or final determination of the values of assets and liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the consolidated statements of operations.

Goodwill and Intangible Assets

We test goodwill for impairment on an annual basis during the fourth quarter of each fiscal year or when specific circumstances dictate, between annual tests. We measure recoverability of goodwill at the reporting unit level. The process of determining the fair value of a reporting unit is highly subjective and involves the use of significant estimates and assumptions. In performing our annual assessment, we can opt to perform a qualitative assessment to test a reporting unit’s goodwill for impairment or we can directly perform a quantitative assessment. Based on our qualitative assessment, if we determine that the fair value of our reporting unit is, more likely than not, less than its carrying amount, then the quantitative assessment is performed. Any excess of the reporting unit's carrying amount over its fair value will be recorded as an impairment loss.

We identify intangible assets acquired in a business combination and determine their fair value. The determination involves certain judgments and estimates. These judgments include, but are not limited to, the cash flows that an asset is expected to generate in the future and the appropriate discount weighted-average cost of capital. We amortize purchased-intangible assets on a straight-line basis over the estimated useful life of the assets. We review purchased-intangible assets whenever events or changes in circumstances indicate that the useful life is shorter than we had originally estimated or that the carrying amount of assets may not be recoverable. If such facts and circumstances indicate an asset’s carrying amount may not be recoverable, we assess the recoverability of purchased-intangible assets by comparing the projected undiscounted net cash flows associated with the asset group against their respective carrying amounts. Impairment, if any, is based on the excess of the carrying amount over the fair value of these asset groups. If the useful life of the asset is shorter than originally estimated, we accelerate the rate of amortization and amortize the remaining carrying value over the new shorter useful life.

Allowances for Sales Returns, Sales Incentives and Doubtful Accounts

Accounts receivable are stated at invoice value less estimated allowances for sales returns, sales incentives and doubtful accounts which is our best estimate of the amount of probable credit losses in our existing accounts receivable. We perform an ongoing analysis of various factors including our historical experience, promotional programs, claims to date and other business factors to determine the allowances for sales returns and sales incentives.

We assess collectability by reviewing accounts receivable on a collective basis where similar characteristics exist and on an individual basis when we identify specific customers with collectability issues and determine the allowance for doubtful accounts. We regularly review the allowance by considering historical collectability based on past due status, credit quality, and make judgments about the creditworthiness of customers based on ongoing credit evaluations. We consider customer-specific information and current economic conditions that may affect a customer's ability to pay.

If our estimates regarding accounts receivable allowances differ from the actual results, the losses or gains, could be material.

Stock-Based Compensation

Stock-based compensation cost is measured at the grant date based on the fair value of the award and is recognized as an expense on a straight-line basis over the requisite service period, which is generally the vesting period of the respective award. Determining the fair value of stock-based awards at the grant date requires judgment.

We account for the fair value of restricted stock units using the closing market price of our Class A common stock on the date of the grant.

We use the Black-Scholes option-pricing model to determine the fair value of stock options. The determination of the grant date fair value of stock options using an option-pricing model is affected by our estimated common stock fair value as well as assumptions regarding a number of other complex and subjective variables. These variables include our expected stock price volatility over the expected term of the options, stock option exercise and cancellation behaviors, risk-free interest rates and expected dividends, which are estimated as follows:

- *Fair Value of Our Common Stock*. We use the closing market price for our Class A common stock as reported on The Nasdaq Global Select Market on the date of grant.
- *Expected Term.* The expected term of employee stock options represents the weighted-average period that the stock options are expected to remain outstanding. To determine the expected term, we generally apply the simplified approach in which the expected term of an award is presumed to be the mid-point between the vesting date and the expiration date of the award as we do not have sufficient historical exercise data to provide a reasonable basis for an estimate of expected term.
- *Volatility.* As we do not have sufficient trading history for our Class A common stock, the expected volatility for our Class A common stock is estimated by taking the average historic price volatility for industry peers based on daily price observations over a period equivalent to the expected term of the stock option awards. Industry peers consist of several public companies in our industry which are either similar in size, stage of life cycle or financial leverage. We intend to consistently apply this process until a sufficient amount of historical information regarding the volatility of our own Class A common stock share price becomes available or unless circumstances change such that the identified peer companies are no longer similar to us, in which case, more suitable companies whose share prices are available would be utilized in the calculation.
- *Risk-free Rate.* The risk-free interest rate is based on the yields of U.S. Treasury securities with maturities similar to the expected term for each of our stock options.

- *Dividend Yield.* We have never declared or paid any cash dividends and do not presently plan to pay cash dividends in the foreseeable future. Consequently, we use an expected dividend yield of zero.

We account for forfeitures as they occur. If any of the assumptions used in the Black-Scholes model changes significantly, stock-based compensation for future awards may differ materially compared with the awards granted previously.

We will continue to use judgement in evaluating assumptions related to our stock-based compensation cost. As we continue to accumulate additional data related to our Class A common stock and our business evolves, we may have refinements to our assumptions and estimates which could impact our future stock-based compensation cost.

Provision for Income Taxes

We account for income taxes in accordance with authoritative guidance, which requires the use of the asset and liability method. Under this method, deferred income tax assets and liabilities are determined based upon the difference between the consolidated financial statement carrying amounts and the tax basis of assets and liabilities and are measured using the enacted tax rate expected to apply to taxable income in the years in which the differences are expected to be reversed.

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. A valuation allowance is provided when it is more likely than not that the deferred tax assets will not be realized. We have established a full valuation allowance to offset domestic net deferred tax assets due to the uncertainty of realizing future tax benefits from our net operating loss carry-forwards and other deferred tax assets. Our valuation allowance is attributable to the uncertainty of realizing future tax benefits from U.S. net operating losses and other deferred tax assets.

Recent Accounting Pronouncements

The recent accounting pronouncements adopted during the year ended December 31, 2020 and those not yet adopted are discussed and included in Note 2 to the consolidated financial statements in Item 8 of this Report. They are incorporated herein by reference.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Fluctuation Risk

Our exposure to interest rate risk relates to the interest income generated by cash, cash equivalents and interest expense on the Credit Facility. The primary objective of our investment policy is to preserve principal while maximizing income without significantly increasing risk. We do not believe that an increase or decrease in interest rates of 100 basis points would have a material effect on our operating results or financial condition. As of December 31, 2020, borrowings under the Term Loan A Facility totaled $95.0 million with an effective interest rate of 2.03%. If the amount outstanding under our Term Loan A Facility remains at this level for an entire year and interest rates increased or decreased by 100 basis points, our annual interest expense would increase or decrease, respectively, by an additional $1.0 million.

Foreign Currency Exchange Rate Risk

Most of our revenue is generated within the United States and we have minimal foreign currency risk related to our revenue. In addition, most of our operating expenses are denominated in the U.S. dollar, resulting in minimal foreign currency risks. In the future, if our international revenues increase or more of our expenses are denominated in currencies other than the U.S. dollar, our exposure to foreign currency risk will likely be more significant. For any of the periods presented, we did not enter into any foreign exchange contracts. However, in the future, we may enter into derivatives or other financial instruments in an attempt to hedge our foreign currency exchange risk.

Item 8. Financial Statements and Supplementary Data

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Roku, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Roku, Inc. and subsidiaries (the "Company") as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive loss, stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2020, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 25, 2021, expressed an unqualified opinion on the Company's internal control over financial reporting.

Changes in Accounting Principles

As discussed in Note 2 to the financial statements, the Company changed its method of accounting for leases in fiscal year 2019 due to the adoption of Accounting Standards Update No. 2016-02, *Leases* (*Topic 842*), using the optional transition method.

Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that 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. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates 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 matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition - Variable Consideration Determination of Content Distribution Services and Branded Channel Buttons – Refer to Note 3 to the financial statements

Critical Audit Matter Description

As part of the Company’s revenue recognition for its arrangements with content publishers, management is required to estimate variable consideration primarily related to content distribution services from transactional revenue sharing, and the sale of branded channel buttons on remote controls.

Variable consideration related to content distribution services with content publishers is included in the estimated transaction price based on the expected value for which a significant reversal of revenue is not expected to occur. For transactional revenue sharing arrangements, the estimate of the variable consideration is based on management's assessment of historical, current, and forecasted performance of the publisher's content application(s). For the sale of branded channel buttons on remote controls, the estimate of the variable consideration is based on management's assessment of historical, current, and forecasted player and Roku TV sales volumes.

We identified the revenue forecasts relating to content publisher arrangements as a critical audit matter due to the significant judgment necessary to estimate variable consideration and transaction prices. Such estimates required a high degree of auditor judgment and an increased extent of effort relative to evaluating the reasonableness of management's estimates and assumptions related to the forecasts of variable consideration.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's forecast used in the determination of future variable consideration included the following, among others:

- We tested the effectiveness of controls over management's forecasting process related to content distribution services and branded channel buttons.
- We selected a sample of revenue arrangements with variable consideration and performed the following:
    - Obtained contractual documents for each selection, including master agreements and other related documents.
    - Analyzed the contractual documents to determine if all arrangement terms that may have an impact on revenue recognition were identified and properly considered in the evaluation of the accounting for the contract, including terms and conditions for revenue sharing.
    - Performed inquiries with applicable individuals in the Company's finance and sales departments regarding the estimates for sales of branded channel buttons.
    - Evaluated management's accuracy of forecasting by comparing the historical forecasts of consideration to actual consideration received.
    - Evaluated changes from prior period forecasts to current period forecasts, when applicable.
    - Compared management's forecasts of variable consideration to historical data, other information within the Company, and certain publicly available historical and forecasted industry information, when applicable.
    - Tested the mathematical accuracy of the compilation of the forecast.

/s/ DELOITTE & TOUCHE LLP

San Jose, California

February 25, 2021

We have served as the Company's auditor since 2008.

ROKU, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except par value)

	As of December 31,	
	2020	2019
Assets		
Current Assets:		
Cash and cash equivalents	$ 1,092,815	$ 515,479
Restricted cash	434	1,854
Accounts receivable, net of allowances of $41,236 and $27,521 as of December 31, 2020 and 2019, respectively	523,852	332,673
Inventories	53,895	49,714
Prepaid expenses and other current assets	26,644	25,943
Total current assets	1,697,640	925,663
Property and equipment, net	155,197	103,262
Operating lease right-of-use assets	266,197	283,291
Intangible assets, net	62,181	76,668
Goodwill	73,058	74,116
Other non-current assets	16,269	7,234
Total Assets	$ 2,270,542	$ 1,470,234
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts payable	$ 112,314	$ 115,227
Accrued liabilities	347,668	198,347
Current portion of long-term debt	4,874	4,866
Deferred revenue, current portion	55,465	39,861
Total current liabilities	520,321	358,301
Long-term debt, non-current portion	89,868	94,742
Deferred revenue, non-current portion	21,283	15,370
Operating lease liability, non-current portion	307,936	301,694
Other long-term liabilities	3,119	1,701
Total Liabilities	942,527	771,808
Commitments and contingencies (Note 12)		
Stockholders' Equity:		
Common stock, $0.0001 par value; 1,150,000 (Class A - 1,000,000 and Class B - 150,000) shares authorized as of December 31, 2020 and 2019; 128,004 (Class A - 110,645 and Class B - 17,359) shares and 119,897 (Class A - 93,574 and Class B - 26,323) shares issued and outstanding as of December 31, 2020 and 2019, respectively	13	12
Additional paid-in capital	1,660,379	1,012,218
Accumulated other comprehensive income	29	29
Accumulated deficit	(332,406)	(313,833)
Total stockholders' equity	1,328,015	698,426
Total Liabilities and Stockholders' Equity	$ 2,270,542	$ 1,470,234

See accompanying Notes to Consolidated Financial Statements.

ROKU, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years Ended December 31, 2020	2019	2018
Net Revenue:			
Platform	$ 1,267,744	$ 740,776	$ 416,863
Player	510,644	388,145	325,643
Total net revenue	1,778,388	1,128,921	742,506
Cost of Revenue:			
Platform	503,177	262,655	120,543
Player	466,992	371,042	289,815
Total cost of revenue	970,169	633,697	410,358
Gross Profit:			
Platform	764,567	478,121	296,320
Player	43,652	17,103	35,828
Total gross profit	808,219	495,224	332,148
Operating Expenses:			
Research and development	355,784	265,011	170,692
Sales and marketing	299,457	178,855	102,780
General and administrative	173,231	116,417	71,972
Total operating expenses	828,472	560,283	345,444
Loss from Operations	(20,253)	(65,059)	(13,296)
Other Income (Expense), Net:			
Interest expense	(3,432)	(2,366)	(346)
Other income (expense), net	5,233	6,506	4,309
Total other income (expense), net	1,801	4,140	3,963
Loss Before Income Taxes	(18,452)	(60,919)	(9,333)
Income tax (benefit) expense	(945)	(982)	(476)
Net Loss Attributable to Common Stockholders	$ (17,507)	$ (59,937)	$ (8,857)
Net loss per share attributable to common stockholders—basic and diluted	(0.14)	$ (0.52)	$ (0.08)
Weighted-average shares used in computing net loss per share attributable to common stockholders—basic and diluted	123,978	115,218	104,618

See accompanying Notes to Consolidated Financial Statements.

ROKU, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years Ended December 31,		
	2020	**2019**	**2018**
Net Loss Attributable to Common Stockholders	$ (17,507)	$ (59,937)	$ (8,857)
Other comprehensive gain (loss), net of tax:			
Unrealized gain (loss) on short-term investments, net of tax	—	17	(17)
Foreign currency translation adjustment	—	29	—
Other comprehensive gain (loss), net of tax	—	46	(17)
Comprehensive Net Loss	$ (17,507)	$ (59,891)	$ (8,874)

See accompanying Notes to Consolidated Financial Statements

ROKU, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (in thousands)

	Common Stock		Additional Paid-in	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Loss	Deficit	Equity
Balance—December 31, 2017	99,157	$ 10	$ 435,607	$ —	$ (283,338)	$ 152,279
Vesting of early exercised stock options	—	—	239	—	—	239
Issuance of common stock pursuant to equity incentive plans, net of taxes	10,481	1	25,033	—	—	25,034
Issuance of common stock pursuant to exercise of common stock warrants, net	141	—	-	—	—	—
Stock-based compensation expense	—	—	37,674	—	—	37,674
Share repurchases	(9)	—	—	—	—	—
Adoption of ASU 2016-16	—	—	—	—	(40)	(40)
Adoption of ASU 2014-09	—	—	—	—	38,339	38,339
Unrealized loss on short-term investments	—	—	—	(17)	—	(17)
Net loss	—	—	—	—	(8,857)	(8,857)
Balance—December 31, 2018	109,770	11	498,553	(17)	(253,896)	244,651
Vesting of early exercised stock options	—	—	86	—	—	86
Share repurchases	(2)	—	—	—	—	—
Issuance of common stock pursuant to equity incentive plans	6,169	1	28,181	—	—	28,182
Issuance of common stock pursuant in connection with at-the-market offerings, net of issuance costs of $6.4 million	3,389	—	330,539	—	—	330,539
Issuance of common stock in connection with acquisition	571	—	69,684	—	—	69,684
Stock-based compensation expense	—	—	85,175	—	—	85,175
Unrealized gain on short-term investments	—	—	—	17	—	17
Foreign currency translation adjustment	—	—	—	29	—	29
Net loss	—	—	—	—	(59,937)	(59,937)
Balance—December 31, 2019	119,897	12	1,012,218	29	(313,833)	698,426
Vesting of early exercised stock options	—	—	38	—	—	38
Issuance of common stock pursuant to equity incentive plans	4,107	1	16,805	—	—	16,806
Issuance of common stock pursuant in connection with at-the-market offering, net of issuance costs of $6.8 million	4,000	—	497,242	—	—	497,242
Stock-based compensation expense	—	—	134,076	—	—	134,076
Adoption of ASU 2016-13	—	—	—	—	(1,066)	(1,066)
Net loss	—	—	—	—	(17,507)	(17,507)
Balance—December 31, 2020	128,004	$ 13	$ 1,660,379	$ 29	$ (332,406)	$ 1,328,015

See accompanying Notes to Consolidated Financial Statements.

ROKU, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years Ended December 31,		
	2020	2019	2018
Cash flows from operating activities:			
Net loss	$ (17,507)	$ (59,937)	$ (8,857)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	36,206	15,669	8,389
Stock-based compensation expense	134,076	85,175	37,674
Amortization of right-of-use assets	28,743	22,328	—
Amortization of content assets	22,392	2,914	—
Provision for doubtful accounts	3,801	704	876
Other items net	524	1,101	1,465
Changes in operating assets and liabilities:			
Accounts receivable	(196,046)	(110,225)	(50,673)
Inventories	(4,181)	(14,129)	(2,953)
Prepaid expenses and other current assets	(3,450)	(9,934)	(306)
Deferred cost of revenue	—	1,143	2,261
Other noncurrent assets	(1,128)	(3,060)	(732)
Accounts payable	6,410	9,409	(98)
Accrued liabilities	103,218	74,512	17,914
Operating lease liabilities	12,999	11,658	—
Other long-term liabilities	618	(3,024)	(1,101)
Deferred revenue	21,517	(10,597)	10,063
Net cash provided by operating activities	148,192	13,707	13,922
Cash flows from investing activities:			
Purchase of property and equipment	(82,382)	(77,180)	(18,327)
Purchase of business, net of cash acquired	—	(68,132)	—
Proceeds from escrows associated with acquisition	1,058	—	—
Purchase of intangible assets	—	(7,428)	—
Purchases of short-term investments	—	(12,365)	(53,806)
Sales/maturities of short-term investments	—	54,810	12,000
Net cash used in investing activities	(81,324)	(110,295)	(60,133)
Cash flows from financing activities:			
Proceeds from borrowings, net of issuance costs	69,325	99,608	—
Repayments of borrowings	(74,325)	—	—
Holdback payment for a prior business acquisition	—	—	(500)
Proceeds from equity issued under incentive plans, net of repurchases	16,806	28,181	25,025
Proceeds from equity issued under at-the-market offerings, net of offering costs	497,242	330,539	—
Net cash provided by financing activities	509,048	458,328	24,525
Net increase (decrease) in cash, cash equivalents and restricted cash	575,916	361,740	(21,686)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	—	29	—
Cash, cash equivalents and restricted cash —Beginning of period	517,333	155,564	177,250
Cash, cash equivalents and restricted cash —End of period	$ 1,093,249	$ 517,333	$ 155,564
Cash, cash equivalents and restricted cash at end of period:			
Cash and cash equivalents	1,092,815	515,479	155,564
Restricted cash	434	1,854	—
Cash, cash equivalents and restricted cash —End of period	$ 1,093,249	$ 517,333	$ 155,564

	Years Ended December 31,		
	2020	2019	2018
Supplemental disclosures of cash flow information:			
Cash paid for interest	$ 3,470	$ 3,095	$ 493
Cash paid for income taxes	$ 1,014	$ 759	$ 564
Supplemental disclosures of noncash investing and financing activities:			
Issuance of common stock for business combinations	$ —	$ 69,684	$ —
Unpaid portion of property and equipment purchases	$ 1,242	$ 10,762	$ 1,617
Unpaid portion of acquisition related expenses	$ —	$ 2,190	$ —
Unpaid portion of purchased intangibles	$ —	$ 400	$ —
Unpaid portion of at-the-market offering costs	$ —	$ 144	$ —

See accompanying Notes to Consolidated Financial Statements.

ROKU, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. THE COMPANY

Organization and Description of Business

Roku, Inc. (the "Company" or "Roku"), was formed in October 2002 as Roku LLC under the laws of the State of Delaware. On February 1, 2008, Roku LLC was converted into Roku, Inc., a Delaware corporation. The Company's TV streaming platform allows users to easily discover and access a wide variety of movies and TV episodes, as well as live sports, music, news and more. The Company operates in two reportable segments and generates platform revenue from advertising, content distribution, audience development, billing services and licensing activities and player revenue from the sale of streaming players and audio products.

2. SIGNIFICANT ACCOUNTING POLICIES AND BASIS OF PRESENTATION

Basis of Presentation and Principles of Consolidation

The consolidated financial statements, which include the accounts of Roku, Inc. and its wholly-owned subsidiaries, have been prepared in conformity with accounting principles generally accepted in the United States ("U.S. GAAP"). All intercompany accounts and transactions have been eliminated in consolidation.

Reclassification of Prior Year Presentation

Certain prior period amounts within cash flow from operations in the statement of cash flows, have been reclassified to conform to current period presentation. These reclassifications had no effect on net cash provided by operating activities for any period reported.

Use of Estimates

The preparation of the Company's consolidated financial statements in accordance with U.S. GAAP requires management to make certain estimates, judgements, and assumptions that affect the reported amounts of assets, liabilities, net revenue and expenses. Significant items subject to such estimates and assumptions include: for revenue recognition, determining the nature and timing of satisfaction of performance obligations, variable consideration, determining the stand-alone selling prices of performance obligations, gross versus net revenue recognition, evaluation of customer versus vendor relationships, and other obligations such as sales return reserves and sales incentive programs; the impairment of goodwill and intangible assets; useful lives of tangible and intangible assets; allowances for doubtful accounts; the valuation of deferred income tax assets; and stock-based compensation. The Company bases its estimates on historical experience and on various other assumptions that the Company believes to be reasonable under the circumstances. Actual results may differ from the Company's estimates and assumptions.

Comprehensive Loss

The comprehensive loss is equal to the net loss for the year ended December 31, 2020. Comprehensive loss includes unrealized gains on the Company's short-term investments and foreign currency translation adjustments for the year ended December 31, 2019. Comprehensive loss includes unrealized losses on the Company's short-term investments for the year ended December 31, 2018. Income taxes on the unrealized gains or losses are not material.

Foreign Currency

The functional currency of the Company's foreign subsidiaries is the U.S. dollar. Monetary assets and liabilities of these subsidiaries are remeasured into U.S. dollars from the local currency at rates in effect at period-end and nonmonetary assets and liabilities are remeasured at historical rates. Revenues and expenses are remeasured at average exchange rates in effect during each period. Foreign currency gains or losses from re-measurement and transaction gains or losses are recorded as other income (expense), net in the consolidated statements of operations. During the year ended December 31, 2020, the Company recorded a foreign currency gain of $1.3 million. During the years ended December 31, 2019 and 2018, the Company recorded a foreign currency loss of $0.2 million and $0.5 million, respectively.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents. As of December 31, 2020, two financial institutions managed 46% and 26%, respectively, of the Company's total cash and cash equivalents balance. As of December 31, 2019, the same two financial institutions managed 65% and 34%, respectively, of the Company's total cash and cash equivalents balance.

Accounts Receivable, net

Accounts receivable are typically unsecured and are derived from revenue earned from customers. They are stated at invoice value less estimated allowances for sales returns, sales incentives and doubtful accounts. The Company performs ongoing credit evaluations of its customers and maintains allowances for potential credit losses and doubtful accounts. The Company considers historical experience, ongoing promotional activities, historical claim rate and other factors to determine the allowances for sales returns and sales incentives.

Allowance for Sales Returns: Allowance for sales returns consist of the following activities (in thousands):

	Years Ended December 31,		
	2020	2019	2018
Beginning balance	$ (6,550)	$ (7,335)	$ (6,907)
Charged to revenue	(14,594)	(15,541)	(17,396)
Utilization of sales return reserve	15,232	16,326	16,968
Ending balance	$ (5,912)	$ (6,550)	$ (7,335)

Allowance for Sales Incentives: Allowance for sales incentives consisted of the following activities (in thousands):

	Years Ended December 31,		
	2020	2019	2018
Beginning balance	$ (19,476)	$ (13,750)	$ (10,442)
Charged to revenue	(68,315)	(65,676)	(50,958)
Utilization of sales incentive reserve	56,953	59,950	47,650
Ending balance	$ (30,838)	$ (19,476)	$ (13,750)

Allowance for Doubtful Accounts: Allowance for doubtful accounts consisted of the following activities (in thousands):

	Years Ended December 31,		
	2020	2019	2018
Balance, beginning of period	$ (1,140)	(686)	(63)
Impact of adoption of ASU 2016-13	(1,066)	—	—
Adjusted balance, beginning of period	(2,206)	(686)	(63)
Provision for doubtful accounts	$ (3,801)	$ (704)	$ (876)
Adjustments for recovery and write-off	1,826	250	253
Balance, end of period	(4,181)	(1,140)	(686)

Customer H accounted for 11% of the accounts receivable, net balance as of December 31, 2020. The Company did not have any customer that accounted for more than 10% of its accounts receivable, net balance as of December 31, 2019.

Business Combinations

The Company determines whether a transaction meets the definition of a business combination before applying the acquisition method of accounting to that transaction. The Company allocates the fair value of the purchase consideration of its acquisitions to the tangible and intangible assets acquired and liabilities assumed, based on their estimated fair values. The excess of the fair value of purchase consideration over the fair values of identifiable assets and liabilities is recorded as goodwill. The operating results of acquired business is included in the Company's consolidated statement of operations beginning on their effective acquisition date. Acquisition-related expenses and certain acquisition restructuring and other related charges are recognized separately from the business combination and are expensed as incurred. Contingent consideration arrangements are recognized at fair value as of the acquisition date with subsequent fair value adjustments recorded in operations.

While the Company uses its best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date, estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. In addition, uncertain tax positions and tax-related valuation allowances are initially recorded in connection with a business combination as of the acquisition date. The Company continues to collect information and reevaluates these estimates and assumptions quarterly and records any adjustments to the Company's preliminary estimates to goodwill provided that the Company is within the measurement period. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our consolidated statements of operations.

Intangible Assets

Intangible assets acquired through business combinations are recorded at their fair values upon acquisition close. Intangible assets are amortized using the straight-line method over their estimated useful lives. The Company evaluates the estimated remaining useful lives of its intangible assets annually and when events or changes in circumstances warrant a revision to the remaining periods of amortization.

Impairment Assessments

The Company evaluates goodwill for possible impairment at least annually during the fourth quarter of each fiscal year or more often, if and when circumstances indicate that goodwill may be impaired. This includes but is not limited to significant adverse changes in the business climate, market conditions, or other events that indicate that it is more likely than not that the fair value of a reporting unit is less than its carrying value. In performing its annual assessment, the Company can opt to perform a qualitative assessment to test a reporting unit's goodwill for impairment or it can directly perform a quantitative assessment. Based on the Company's qualitative assessment, if it is determined that the fair value of our reporting unit is, more likely than not, less than its carrying amount, then the quantitative assessment is performed. Any excess of the reporting unit's carrying amount over its fair value is be recorded as an impairment loss.

The Company reviews long-lived assets, intangible assets and capitalized licensed content assets with finite lives for impairment when events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable or that the useful lives of those assets are no longer appropriate. The Company assesses these assets for impairment based on their estimated undiscounted future cash flows. If the carrying value of the asset group exceeds the estimated future undiscounted cash flows, the Company recognizes an impairment loss based on the excess of the carrying amount over the fair value of the asset group.

The Company did not recognize any impairment for goodwill, intangible assets or capitalized licensed content assets in any periods reported. The impairments of operating right-of-use assets during the years ended December 31, 2020 and 2019 were not material.

Revenue Recognition

Revenue is recognized upon transfer of control of promised goods or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those goods or services. The Company’s contracts include various product or services or a combination of both, which are generally capable of being distinct and are accounted for as separate performance obligations. The Company’s contracts often contain multiple distinct performance obligations.

The Company estimates the transaction price of a contract based on the expected value for which a significant reversal of revenue is not expected to occur. The estimate of the variable consideration is based on the assessment of historical, current, and forecasted performance noted and expected from the performance obligation.

In arrangements with multiple performance obligations, the estimated transaction price of each contract is allocated to each distinct performance obligation based on relative stand-alone selling price (“SSP”). For performance obligations routinely sold separately, the SSP is determined by evaluating such stand-alone sales. For those performance obligations that are not routinely sold separately, the Company determines SSP based on market conditions and other observable inputs.

When the Company sells third-party goods and services, it evaluates whether the Company is the principal, and reports revenues on a gross basis, or an agent, and reports revenues on a net basis. In this assessment, the Company considers if it obtains control of the specified goods or services before they are transferred to the customer, as well as other indicators such as the party primarily responsible for fulfillment, inventory risk, and discretion in establishing price.

Revenue is recorded net of taxes collected from customers which are subsequently remitted to the relevant government authority. The Company does not capitalize any cost associated with contract acquisition because it applies a practical expedient and expenses commissions when incurred as most direct contract acquisition costs relate to contracts that are recognized over a period of one year or less. Sales commissions are included in Sales and marketing expenses in the consolidated statements of operations. As-invoiced practical expedient is applied when the amount of consideration the Company has a right to invoice corresponds directly with the value to the customer of the entity’s performance completed to date.

Nature of Products and Services

Platform segment:

The Company generates platform revenue from the sale of digital advertising and related services, content distribution services, subscription and transaction revenue shares, Premium Subscriptions, billing services, sale of branded channel buttons on remote controls and licensing arrangements with service operators and TV brands.

The Company sells digital advertising directly to marketers or through advertising agencies. Revenue from advertising is mostly generated through video and display advertising delivered through advertising impressions. Advertising is typically sold on a cost-per-thousand ("CPM") basis and is evidenced by an Insertion Order ("IO"). Revenue is recognized as the number of impressions are delivered. IOs may include multiple performance obligations as they contain distinct advertising products or services. For such arrangements, the Company allocates revenue to each distinct performance obligation based on their relative SSP. The Company also generates revenue from customers using its platform. For that it charges a platform fee, which is a percentage of a customer's advertising inventory spend during the month, along with data and any add-on features purchased through the platform. The Company recognizes revenue on either a gross or net basis for digital advertising based on its determination as to whether it is acting as the principal in the revenue generation process or as an agent. Where the Company is the principal, it controls the advertising inventory before it is transferred to its customers. This is further supported by the Company being primarily responsible to its customers and having a level of discretion in establishing pricing. Advertising arrangements comprised of multiple performance obligations are recognized either at a point in time or over time depending on the nature of the distinct performance obligation.

The Company's content distribution revenue sharing arrangements include cash or non-cash consideration. The revenue sharing arrangements generally apply to new subscriptions for accounts that sign up for new services and at the time of a movie rental or purchase. Revenue is recognized on a net basis as the Company is deemed to be the agent between content publishers and end users. Revenue is recognized on a time elapsed basis, by day, as the services are delivered over the contractual distribution term. Non-cash consideration is usually in the form of advertising inventory, the fair value of which is determined based on relevant internal and third-party data.

The Company sells monthly subscriptions for premium content on The Roku Channel for varying fees for different content. Revenue from such premium subscription fees is recognized on a gross basis over the service period as the Company is deemed to be the principal in the relationship with the end user. The Company obtains control of the content before transferring to the end user and has latitude in establishing pricing. The Company pays fixed fees to the providers of premium content on The Roku Channel based on the contractual arrangement and recognizes that in Cost of revenue, platform.

The Company sells branded channel buttons on remote controls of streaming devices that provide one-touch access to a publisher's content. The Company typically receives a fixed fee per button for each unit sold over a defined distribution period. Revenue is recognized on a time elapsed basis, by day, over the distribution term.

The Company licenses the Roku OS, including updates and upgrades, to TV brands and service operators. The licensing revenue is recognized at a point in time, when the Company makes the intellectual property available and the control transfers to the customer. The revenue allocated to unspecified upgrades is recognized on a time elapsed basis, by day, over the service period. Professional services revenue is recognized as services are provided or accepted. Hosting fees are recognized on a time elapsed basis, by day, over the service period.

Player segment:

The Company sells the majority of its players and audio products to retail distribution channels in the U.S., including brick and mortar and online retailers, as well as through the Company's website. Player revenue primarily consists of hardware, embedded software and unspecified upgrades on a when and if-available basis. The hardware and embedded software are considered as one performance obligation and revenue is recognized at a point in time when the control transfers to the customer. Unspecified upgrades or enhancements are available to customers on a when-and-if available basis. The Company records the allocated value of the unspecified upgrades as deferred revenue and recognizes it as player revenue ratably on a time elapsed basis over the estimated economic life of the associated players.

The Company's player revenue includes allowances for sales returns and sales incentives in the estimated transaction price. These estimates are based on historical experience and anticipated performance. Shipping charges billed to customers are included in Revenue and the related shipping costs are included in Cost of revenue.

Leases

On January 1, 2019, the Company adopted the guidance in *Leases (Topic 842),* using the optional transition method and recorded operating right-of-use ("ROU") assets and operating lease liabilities on its consolidated balance sheets. The Company determines if an arrangement contains a lease at its inception. Operating leases are included in operating lease right-of-use assets, accrued liabilities, and operating lease liability in our consolidated balance sheets. ROU assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease. ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As the rate implicit in the lease is not readily determinable, the Company uses its incremental borrowing rate based on the information available at the commencement date in determining the present value of future lease payments. The Company takes into consideration its credit rating and the length of the lease when calculating the incremental borrowing rate. The Company considers the options to extend or terminate the lease in determining the lease term, when it is reasonably certain to exercise one of the options. The Company combines lease and non-lease components into a single lease component for its real estate and equipment leases.

Fair Value of Financial Instruments

The Company defines fair value as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company applies fair value accounting for all assets and liabilities that are recognized or disclosed at fair value in the consolidated financial statements. The carrying amounts reported in the consolidated financial statements for cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximate their fair values due to their short-term nature. The carrying amount of debt approximates fair value due to its variable interest rates.

Inventories

The Company's inventories consist primarily of finished goods and are stated at the lower of cost or net realizable value with cost determined on a first-in, first-out basis. Provisions are made if the cost of the inventories exceeds their net realizable value. The Company evaluates inventory levels and purchase commitments for excess and obsolete products, based on management's assessment of future demand and market conditions.

Property and Equipment

Property and equipment are recorded at cost and depreciated using the straight-line method over their estimated useful lives of the assets, generally ranging between eighteen months and five years. Leasehold improvements are amortized over the shorter of the lease term or their estimated useful lives, which range from five to ten years.

The Company capitalizes costs to develop its internal-use software. Costs that relate to the planning and post-implementation phases of development are expensed as incurred. Costs are capitalized when preliminary efforts are successfully completed, management has authorized and committed to funding the project, and it is probable that the project will be completed and will be used as intended. Costs incurred for enhancements that are expected to result in additional material functionality are capitalized. During the years ended December 31, 2020, 2019 and 2018, the Company capitalized internal-use software development costs of $2.2 million, $0.1 million and $1.0 million, respectively. Capitalized costs are amortized using the straight-line method over the estimated useful life of the asset, which is generally two to three years, beginning when the asset is ready for its intended use. During the years ended December 31, 2020, 2019 and 2018, the Company amortized expenses of $0.5 million, $1.6 million and $2.0 million, respectively.

Deferred Revenue

The Company's deferred revenue reflects fees received from licensing and service arrangements, including advertising, that will be recognized as revenue over time or as services are rendered. Deferred revenue balances consist of the amount of player sales allocated to unspecified upgrades or enhancements on a when-and-if available basis, licensing and services fees from service operators and TV brands, and payments from advertisers and content publishers. Deferred revenue expected to be realized within one year is classified as current liabilities and the remaining is recorded as noncurrent liabilities.

Advertising Costs

Advertising costs are expensed when incurred and are included in Sales and marketing expense in the consolidated statements of operations. The Company incurred advertising costs of $7.1 million, $7.3 million and $3.0 million for the years December 31, 2020, 2019 and 2018, respectively.

Stock-Based Compensation

The Company measures compensation expense for all stock-based awards, including restricted stock units and stock options granted to employees, based on the estimated fair value of the award on the date of grant. For restricted stock units, the grant date fair value is based on the closing market price of the Company's Class A common stock on the date of grant. The fair value of each stock option is estimated using the Black-Scholes option-pricing model. The Company accounts for forfeitures as they occur. Stock-based compensation is recognized on a straight-line basis over the requisite vesting period.

Income Taxes

The Company accounts for income taxes using an asset and liability approach. Deferred tax assets and liabilities are determined based on the difference between the consolidated financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts that are more likely than not to be realized.

Net Loss per Share

Since the Company was in a loss position for all periods presented, basic net loss per share is the same as diluted net loss per share for all periods as the inclusion of all potential common shares outstanding and potentially dilutive securities would have been anti-dilutive.

Recently Adopted Accounting Standards

In June 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU") 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The guidance amended reporting of credit losses for assets held at amortized cost basis and available-for-sale debt securities to require that credit losses on available-for-sale debt securities be presented as an allowance rather than as a write-down.

On January 1, 2020, the Company adopted this guidance using the modified retrospective adoption method and recorded a cumulative-effect adjustment to the beginning balance of accumulated deficit of approximately $1.1 million. The measurement of credit losses for newly recognized financial assets and subsequent changes in the allowance for credit losses are recorded in the statements of operations. This impact mainly relates to credit losses recognized on the Company's doubtful accounts. As the Company did not have any available-for-sale debt securities as of the adoption date, there was no additional impact to accumulated deficit.

In March 2019, the FASB issued ASU 2019-02, *Entertainment—Films—Other Assets—Film Costs (Subtopic 926-20) and Entertainment—Broadcasters—Intangibles—Goodwill and Other (Subtopic 920-350): Improvements to Accounting for Costs of Films and License Agreements for Program Materials*, in order to align the accounting for production costs of an episodic television series with the accounting for production costs of films by removing the content distinction for capitalization. ASU 2019-02 also requires that an entity reassess estimates of the use of a film in a film group and account for any changes prospectively. In addition, ASU 2019-02 requires that an entity test films and license agreements for program material for impairment at a film group level when the film or license agreements are predominantly monetized with other films and license agreements. On January 1, 2020, the Company adopted the guidance in ASU 2019-02. There was no material impact to the Company's consolidated financial statements.

The Company also adopted the following ASUs effective January 1, 2020, none of which had a material impact on the Company's financial position or results of operations.

ASU	Description
ASU 2018-15	Intangibles—Goodwill and Other—Internal-Use Software (Topic 350), Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract
ASU 2018-13	Fair Value Measurements (Topic 820), Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement
ASU 2017-04	Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment
ASU2019-04	Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments
ASU2020-02	Financial Instruments—Credit Losses (Topic 326) and Leases (Topic 842)—Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 119 and Update to SEC Section on Effective Date Related to Accounting Standards Update No. 2016-02, Leases (Topic 842)
ASU2020-03	Codification Improvements to Financial Instruments

In March 2020, FASB issued ASU 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting*. This guidance provides optional expedients and exceptions for applying U.S. GAAP to contract modifications, hedging relationships, and other transactions that reference London Interbank Offered Rate ("LIBOR") that is expected to be discontinued, subject to meeting certain criteria. The guidance is effective as of March 12, 2020 through December 31, 2022. The Company made a policy election in the second quarter of 2020 to elect a different reference rate for the Credit Agreement when LIBOR is discontinued. It is still uncertain when the transition from LIBOR to another reference rate will occur or which reference rate will become the accepted market alternative to LIBOR.

Recent Accounting Standards Not Yet Adopted

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, to simplify the accounting for income taxes by removing certain exceptions to the general principles and also simplification of areas such as franchise taxes, step-up in tax basis goodwill, separate entity financial statements and interim recognition of enactment of tax laws or rate changes. The guidance is effective for fiscal years beginning after December 15, 2020, including interim reporting periods within those fiscal years, with early adoption permitted. The Company believes that the adoption of this guidance will not have a material impact on the financial statements.

3. REVENUE

The Company's disaggregated revenues are represented by the two reportable segments discussed in Note 17.

The contract balances include the following (in thousands):

	As of December 31,		
	2020	2019	2018
Accounts receivable, net	$ 523,852	$ 332,673	$ 183,078
Contract assets (included in Prepaid expenses and other current assets)	7,431	3,588	753
Deferred revenue, current portion	55,465	39,861	45,442
Deferred revenue, non-current portion	21,283	15,370	19,594
Total deferred revenue	$ 76,748	$ 55,231	$ 65,036

Accounts receivable are recorded at the amount invoiced, net of an allowance for doubtful accounts, sales returns, and sales incentives. Payment terms can vary by customer and contract.

The timing of revenue recognition may differ from the timing of invoicing to customers. Contract assets are created when invoicing occurs subsequent to revenue recognition. Contract assets are transferred to accounts receivable when the right to invoice becomes unconditional. The Company's contract assets are generally current in nature and are included in Prepaid expenses and other current assets. Contract assets increased by $3.8 million during the year ended December 31, 2020 and by $2.8 million during the year ended December 31, 2019 primarily due to an increase in the growth of platform revenue combined with the timing of billing which falls into a subsequent period.

Contract liabilities are included in deferred revenue and reflect consideration invoiced prior to the completion of performance obligations and revenue recognition. Deferred revenue increased by approximately $21.5 million during the year ended December 31, 2020 due to the increase in estimated values of content publisher and licensing partner arrangements and change in the timing of fulfillment of performance obligations of approximately $12.4 million, and higher growth in the player segment, resulting in a net increase in deferred revenue related to unspecified upgrades of approximately $8.4 million. Deferred revenue decreased by approximately $9.8 million during the year ended December 31, 2019 primarily due to revenue recognized of $5.0 million pursuant to customer acceptance of a milestone, and the remaining revenue recognized primarily relates to the timing of fulfillment of performance obligations.

Revenue recognized during the year ended December 31, 2020 from amounts included in deferred revenue as of December 31, 2019 was $42.9 million. Revenue recognized during the year ended December 31, 2019 from amounts included in deferred revenue as of December 31, 2018 was $52.5 million.

Revenue allocated to remaining performance obligations represents estimated contracted revenue that has not yet been recognized which includes unearned revenue and amounts that will be invoiced and recognized as revenue in future periods. Estimated contracted revenue was $513.7 million as of December 31, 2020 of which the Company expects to recognize approximately 55% over the next 12 months and the remainder thereafter.

The Company recognized $14.4 million and $10.9 million during the years ended December 31, 2020 and 2019, respectively, from performance obligations that were satisfied in previous periods due to the changes in transaction price of its revenue contracts.

Customer C accounted for 12%, 14% and 18% of the total net revenue during the years ended December 31, 2020, 2019 and 2018, respectively.

4. BUSINESS COMBINATION

On November 8, 2019, the Company acquired all outstanding shares of dataxu, Inc., ("dataxu") according to the terms and conditions of the Agreement and Plan of Merger, dated as of October 22, 2019 (the "Merger Agreement"). dataxu is a demand-side platform ("DSP") that enables marketers to plan and buy video ad campaigns. The acquisition of dataxu's platform complements the Company's OTT advertising platform and enables marketers to access a single, data-driven software solution to plan, buy, and optimize their ad spend across TV and OTT providers.

The total purchase consideration for dataxu was $147.3 million, which consisted of $77.6 million in cash and $69.7 million for the fair value of the Company's 571,459 shares of Class A common stock. Pursuant to the Merger Agreement, the Company had deposited $18.8 million into an escrow account to secure certain indemnifications and other potential obligations. As of the year ended December 31, 2020, a balance of $13.6 million is unreleased and remains in the escrow account.

The allocation of the purchase consideration to tangible and intangible assets acquired and liabilities assumed on acquisition date is based on estimated fair values and is as follows (in thousands):

Assets acquired	Fair Values	Estimated Useful Lives (in years)
Current assets	$ 50,829	
Restricted cash	1,303	
Property and equipment, net	4,503	
Intangible assets:		
Developed Technology	56,400	6.0
Customer relationships	13,400	4.0
Tradename	400	0.5
Goodwill	71,676	
Operating lease right-of-use assets	24,658	
Other long-term assets	235	
Total assets acquired	223,404	
Liabilities assumed		
Current liabilities	(51,428)	
Operating lease liabilities	(24,658)	
Total liabilities assumed	(76,086)	
Total purchase consideration	**$ 147,318**	

The fair value estimates of the net assets acquired are based upon calculations and valuations, and those estimates and assumptions regarding certain tangible assets acquired and liabilities assumed. The excess of the total consideration over the tangible assets, identifiable intangible assets, and assumed liabilities is recorded as goodwill. Goodwill is primarily attributable to expected synergies in our advertising offerings and cross-selling opportunities.

The goodwill recorded is not deductible for tax purposes. In connection with the acquisition, a deferred tax liability is established for the book/tax differences related to non-goodwill intangible assets. The deferred tax liability is not reflected as the Company also acquired deferred tax assets, including significant net operating losses, that offset the deferred tax liability. Additionally, both companies have full valuation allowances recorded against their respective deferred tax assets, resulting in a net zero adjustment to deferred taxes on the consolidated balance sheets.

5. GOODWILL AND INTANGIBLE ASSETS

Goodwill

Goodwill represents the excess of purchase consideration in a business combination over the fair value of tangible and intangible assets acquired net of the liabilities assumed.

The following table reflects the carrying value of goodwill (in thousands):

	Carrying Value
Balance as of December 31, 2018	$ 1,382
Addition: dataxu acquisition	72,734
Balance as of December 31, 2019	74,116
Adjustment: dataxu working capital adjustments	(1,058)
Balance as of December 31, 2020	$ 73,058

Goodwill is evaluated for impairment annually. No impairment was recognized during the years ended December 31, 2020, 2019 and 2018.

Intangible Assets

The following table is the summary of Company's intangible assets (in thousands):

	As of December 31, 2020			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Useful Lives (in years)
Developed technology	$ 62,367	$ (13,439)	$ 48,928	5.9
Customer relationships	13,400	(3,908)	9,492	4.0
Tradename	400	(400)	—	0.5
Patents	4,076	(315)	3,761	14.0
Intangible assets	$ 80,243	$ (18,062)	$ 62,181	

	As of December 31, 2019			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted-Average Useful Lives (in years)
Developed technology	$ 62,367	$ (2,860)	$ 59,507	5.9
Customer relationships	13,400	(558)	12,842	4.0
Tradename	400	(133)	267	0.5
Patents	4,076	(24)	4,052	14.0
Intangible assets	$ 80,243	$ (3,575)	$ 76,668	

The Company recorded expenses of $14.5 million, $2.8 million and $0.6 million for amortization of intangible assets during the years ended December 31, 2020, 2019 and 2018, respectively. In the years ended December 31, 2020 and 2019, the Company recorded amortization of developed technology in Cost of revenue, platform, Cost of revenue, player, Research and development, and General and administrative expenses and recorded amortization of customer relationships and tradename in Sales and marketing expenses in the consolidated statements of operations. In the year ended December 31, 2018, the Company recorded amortization of developed technology in Research and development expenses in the consolidated statements of operations.

The estimated future amortization expense for intangible asset for the next five years and thereafter is as follows (in thousands):

Year Ending December 31,	
2021	$ 14,036
2022	13,666
2023	13,108
2024	10,316
2025	8,750
Thereafter	2,305
Total	$ 62,181

6. BALANCE SHEET COMPONENTS

Accounts Receivable, net: Accounts receivable, net consisted of the following (in thousands):

	As of December 31,	
	2020	2019
Gross accounts receivable	$ 565,088	$ 360,194
Allowance for sales returns	(5,912)	(6,550)
Allowance for sales incentives	(30,838)	(19,476)
Allowance for doubtful accounts	(4,181)	(1,140)
Other allowances	(305)	(355)
Total allowances	(41,236)	(27,521)
Total Accounts Receivable, net of allowances	$ 523,852	$ 332,673

Property and Equipment, net: Property and equipment, net consisted of the following (in thousands):

	As of December 31,	
	2020	2019
Computers and equipment	$ 30,859	$ 23,834
Leasehold improvements	144,013	93,239
Website and internal-use software	6,744	6,510
Office equipment and furniture	19,661	12,091
Total property and equipment	201,277	135,674
Accumulated depreciation and amortization	(46,080)	(32,412)
Property and Equipment, net	$ 155,197	$ 103,262

Depreciation and amortization expense, for property and equipment assets, for the years ended December 31, 2020, 2019 and 2018 was $21.7 million, $12.8 million and $7.8 million, respectively.

Accrued Liabilities: Accrued liabilities consisted of the following (in thousands):

	As of December 31,	
	2020	2019
Payments due to content publishers	$ 106,576	$ 57,376
Accrued cost of revenue	98,285	58,149
Marketing, retail and merchandising costs	43,645	7,624
Operating lease liability, current	35,647	17,896
Accrued royalty expense	15,713	18,040
Licensed content liability, current	6,165	1,679
Other accrued expenses	41,637	37,583
Total Accrued Liabilities	$ 347,668	$ 198,347

Deferred Revenue: Deferred revenue consisted of the following (in thousands):

	As of December 31,	
	2020	2019
Platform, current	$ 27,587	$ 18,234
Player, current	27,878	21,627
Total deferred revenue, current	55,465	39,861
Platform, non-current	9,909	6,135
Player, non-current	11,374	9,235
Total deferred revenue, non-current	21,283	15,370
Total Deferred Revenue	$ 76,748	$ 55,231

7. LICENSED CONTENT ASSETS

The Company licenses content for streaming on The Roku Channel. The licensing arrangements can be for a fixed fee or variable fee. The licensing arrangements specify the period when the content is available for streaming. The Company capitalizes the fixed content fees and its corresponding liability when the license period begins, the cost of the content is known, and the content is accepted and available for streaming. If the licensing fee is not determinable or reasonably estimable, no asset or liability is recorded, and licensing costs are expenses as incurred. The Company amortizes licensed content assets into Cost of Revenue, Platform, using the straight-line method over the contractual period of availability. The liability is paid in accordance with the contractual terms of the arrangement. On January 1, 2020, the Company adopted the guidance in ASU 2019-02, *Entertainment—Films—Other Assets—Film Costs (Subtopic 926-20) and Entertainment—Broadcasters—Intangibles—Goodwill and Other (Subtopic 920-350): Improvements to Accounting for Costs of Films and License Agreements for Program Materials*, on a prospective basis. The adoption did not have material impact on its financial statements.

As of December 31, 2020, licensed content assets that met these requirements were $7.9 million and are recorded in “Other non-current assets.” As of December 31, 2019, licensed content assets that met these requirements were $1.7 million and are recorded in Prepaid expenses and other current assets. Payments for content, including additions to content assets and the changes in related liabilities, are classified within Net cash provided by operating activities on the consolidated statements of cash flows. The increase in the content asset is due to a change in the mix of content licensed and the period over which such content is available for streaming. The corresponding liability is included in Accrued liabilities and Other long-term liabilities and is discussed in Note 12.

The Company recorded amortization expense of $22.4 million and $2.9 million for the years ended December 31, 2020 and 2019, respectively, in Cost of revenue, platform in the consolidated statements of operations, related to capitalized licensed content assets. The following table reflects the amortization expense for the next three years for capitalized licensed content assets as of December 31, 2020 (in thousands):

Year Ending December 31,	
2021	$ 6,527
2022	1,338
2023	42

Licensed content assets are primarily monetized together as a unit, referred to as a film group. The film group is evaluated for impairment whenever an event occurs or circumstances change indicating the fair value is less than the carrying value. The Company reviews various qualitative factors and indicators to assess whether the group asset is impaired. As of December 31, 2020, the Company did not recognize any impairment for capitalized licensed content assets.

8. FAIR VALUE DISCLOSURE

The Company's financial assets measured at fair value are as follows (in thousands):

	As of December 31, 2020		As of December 31, 2019	
	Fair Value	Level 1	Fair Value	Level 1
Assets:				
Cash and cash equivalents:				
Cash	$ 1,021,022	$ 1,021,022	$ 463,820	$ 463,820
Money market funds	71,793	71,793	51,659	51,659
Restricted cash	434	434	1,854	1,854
Total assets measured and recorded at fair value	$ 1,093,249	$ 1,093,249	517,333	$ 517,333

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in the principal market (or most advantageous market, in the absence of a principal market) for the asset or liability in an orderly transaction between market participants at the measurement date. Further, the Company maximizes the use of observable inputs and minimizes the use of unobservable inputs in measuring fair value, and to utilize a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. The three levels of inputs used to measure fair value are as follows:

Level 1—Quoted prices in active markets for identical assets or liabilities.

Financial assets and liabilities measured using Level 1 inputs include cash equivalents, restricted cash, accounts receivable, prepaid expenses and other current assets, accounts payable and accrued liabilities.

The Company considers all highly liquid investments purchased with an original or remaining maturity of three months or less at the date of purchase to be cash equivalents. The Company measured money market funds of $71.8 million and $51.7 million as cash equivalents as of December 31, 2020 and 2019, respectively, using Level 1 inputs.

Level 2—Observable inputs other than quoted prices included within Level 1, including quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities in markets that are not active; and inputs other than quoted prices that are observable or are derived principally from, or corroborated by, observable market data by correlation or other means.

The Company did not have any Level 2 instruments as of December 31, 2020 and 2019.

Level 3—Unobservable inputs that are supported by little or no market activity, are significant to the fair value of the assets or liabilities and reflect the Company's own assumptions about the assumptions market participants would use in pricing the asset or liability developed based on the best information available in the circumstances.

The Company did not have Level 3 instruments at December 31, 2020 and 2019.

Assets and liabilities that are measured at fair value on a non-recurring basis

Non-financial assets such as goodwill, intangible assets, property, plant, and equipment, operating lease right-of-use assets and licensed content assets are evaluated for impairment and adjusted to fair value using Level 3 inputs, only when impairment is recognized. The impairments for operating ROU assets recorded by the Company for the years ended December 31, 2020 and 2019 were not material.

9. LEASES

The Company has entered into operating leases primarily for office real estate. The leases have remaining terms ranging from one year to 10 years and may include options to extend or terminate the lease. The depreciable life of ROU assets is limited by the expected lease term.

The components of lease expense are as follows (in thousands):

	Years Ended December 31, 2020	Years Ended December 31, 2019
Operating lease cost (1)	$ 56,348	$ 35,146
Sublease income	(2,105)	(2,622)
Net operating lease cost	$ 54,243	$ 32,524

(1) For the years ended December 31, 2020 and 2019, variable lease costs were $12.1 million and $4.9 million, respectively. Variable lease costs primarily include common area maintenance charges.

Supplemental cash flow information related to leases is as follows (in thousands):

	Years Ended December 31, 2020	Years Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash outflows from operating leases	$ 30,664	$ 17,721
Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	$ 12,031	$ 267,048

Supplemental balance sheet information related to leases was as follows (in thousands, except lease term and discount rate):

	As of December 31, 2020	As of December 31, 2019
Operating lease right-of-use assets	$ 266,197	$ 283,291
Included in accounts payable and accrued liabilities:		
Operating lease liability, current	35,647	17,896
Operating lease liability, non-current	307,936	301,694
Total operating lease liability	$ 343,583	$ 319,590
Weighted Average Remaining Lease Term:		
Operating leases (in years)	9.05	9.98
Weighted Average Discount Rate:		
Operating leases	4.60%	4.65%

Future lease payments under operating leases as of December 31, 2020 were as follows (in thousands):

Year Ending December 31,	Operating Leases
2021	$ 50,889
2022	47,377
2023	47,597
2024	46,635
2025	46,295
Thereafter	201,852
Total future lease payments	440,645
Less: imputed interest	(81,076)
Less: expected tenant improvement allowance	(15,986)
Total	$ 343,583

As of December 31, 2020, the Company's commitment relating to the operating lease that has not yet commenced is $2.7 million. This operating lease commences in fiscal year 2025 and has a lease term of two years.

10. DEBT

The Company's outstanding debt as of December 31, 2020 and 2019 is as follows (in thousands):

	As of December 31,			
	2020		2019	
	Amount	Effective Interest Rate	Amount	Effective Interest Rate
Term Loan A Facility	$ 95,000	2.03%	$ 100,000	3.48%
Less: Debt issuance costs	(258)		(392)	
Net carrying amount of debt	$ 94,742		$ 99,608	

The carrying amount of debt approximates fair value due to its variable interest rates. The interest expense for the years ended December 31, 2020 and 2019 relating to the Credit Agreement is $2.6 million and $0.4 million, respectively.

Senior Secured Term Loan A and Revolving Credit Facilities

On February 19, 2019 (the "Original Closing Date"), the Company entered into a Credit Agreement (the "Existing Credit Agreement") with Morgan Stanley Senior Funding, Inc. On May 3, 2019, (the "Closing Date"), the Existing Credit Agreement was amended pursuant to an Incremental Assumption and Amendment No. 1 (the "Amendment" and the Existing Credit Agreement as amended by the Amendment, the "Credit Agreement"). On the Original Closing Date, the Company terminated the Amended and Restated Loan and Security Agreement that it entered into with Silicon Valley Bank in November 2014 (the "Restated 2014 LSA").

The Credit Agreement provides for (i) a four-year revolving credit facility in the aggregate principal amount of up to $100.0 million (the "Revolving Credit Facility"), (ii) a four-year delayed draw term loan A facility in the aggregate principal amount of up to $100.0 million (the "Term Loan A Facility") and (iii) an uncommitted incremental facility, subject to the satisfaction of certain financial and other conditions, in the amount of up to (v) $50.0 million, plus (w) 1.0x of the Company's EBITDA for the most recently completed four fiscal quarter period, plus (x) an additional amount at the Company's discretion, so long as, on a pro forma basis at the time of incurrence, the Company's secured leverage ratio does not exceed 1.50 to 1.00, plus (y) voluntary prepayments of the Revolving Credit Facility and Term Loan A Facility to the extent accompanied by concurrent reductions to the applicable Credit Facility (together with the Revolving Credit Facility and the Term Loan A Facility, collectively, the "Credit Facility").

On November 18, 2019, the Company borrowed the Term Loan A facility in the aggregate principal amount of $100.0 million. In March 2020, the Company borrowed the available balance of $69.3 million from the Revolving Credit Facility. For both borrowings, the Company elected an interest rate equal to the adjusted one-month LIBOR rate plus an applicable margin of 1.75% based on the Company's secured leverage ratio. In May 2020, the Company repaid the outstanding balance on the Revolving Credit Facility.

Loans under the Term Loan A Facility amortize in equal quarterly installments beginning on March 31, 2020, in an aggregate annual amount equal to (i) on or prior to December 31, 2021, 1.25% of the drawn principal amount of the Term Loan Facility or $1.25 million and (ii) thereafter, 2.50% of the drawn principal amount of the Term Loan Facility or $2.5 million, with the remaining balance payable on the maturity date of the Term Loan A Facility in February 2023. The Revolving Credit Facility may be borrowed, repaid and reborrowed until the fourth anniversary of the Closing Date in February 2023, at which time all outstanding balances of the Revolving Credit Facility are due to be repaid.

The Company had outstanding letters of credit against the Revolving Credit Facility of $30.8 million and $30.7 million as of December 31, 2020 and December 31, 2019, respectively.

The Company's obligations under the Credit Agreement are secured by substantially all of its assets. In the future, certain of its direct and indirect subsidiaries may be required to guarantee the Credit Agreement. The Company may prepay, and in certain circumstances would be required to prepay, loans under the Credit Agreement without payment of a premium. The Credit Agreement contains customary representations and warranties, customary affirmative and negative covenants, a financial covenant that is tested quarterly and requires the Company to maintain a certain adjusted quick ratio of at least 1.00 to 1.00, and customary events of default.

As of December 31, 2020, the Company was in compliance with all of the covenants of the Credit Agreement.

11. STOCKHOLDERS' EQUITY

Preferred Stock

The Company has 10 million shares of undesignated preferred stock authorized but not issued with rights and preferences determined by the Company's Board of Directors at the time of issuance of such shares. As of December 31, 2020 and 2019, there were no shares of preferred stock issued and outstanding.

Common Stock

The Company has two classes of authorized common stock, Class A common stock and Class B common stock. Holders of Class A common stock are entitled to one vote for each share of Class A common stock held on all matters submitted to a vote of stockholders and holders of Class B common stock are entitled to ten votes for each share of Class B common stock held on all matters submitted to a vote of stockholders. Except with respect to voting, the rights of the holders of Class A and Class B common stock are identical. Shares of Class B common stock are voluntarily convertible into shares of Class A common stock at the option of the holder and are generally automatically converted into shares of the Company's Class A common stock upon sale or transfer. Shares issued in connection with exercises of stock options, vesting of restricted stock units, or shares purchased under the employee stock purchase plan are generally automatically converted into shares of the Company's Class A common stock.

At-the-Market Offering

On May 13, 2020, the Company entered into an Equity Distribution Agreement with Morgan Stanley & Co. LLC and Citigroup Global Markets Inc., as its sales agents, pursuant to which the Company sold an aggregate of 4.0 million shares of the Company's Class A common stock and received gross proceeds of $504.0 million at an average selling price of $126.01 per share and incurred issuance costs of $6.8 million.

Common Stock Reserved For Issuance

At December 31, 2020, the Company had reserved shares of common stock for issuance as follows (in thousands):

	As of December 31, 2020
Common stock awards granted under equity incentive plans	13,088
Common stock awards available for issuance under the 2017 Employee Stock Purchase Plan *	5,089
Common stock awards available for issuance under the 2017 Equity Incentive Plan	21,420
Total reserved shares of common stock	39,597

* The Company has not issued any common stock pursuant to the 2017 Employee Stock Purchase Plan.

Equity Incentive Plans

The Company has two equity incentive plans, the 2008 Equity Incentive Plan (the "2008 Plan") and the 2017 Equity Incentive Plan (the "2017 Plan"). The 2017 Plan became effective September 2017 in connection with the IPO. No further shares have been issued under the 2008 Plan. The 2017 Plan provides for the grant of incentive stock options to the Company's employees and for the grant of non-statutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance stock awards, performance cash awards, and other forms of equity compensation to the Company's employees, directors and consultants.

Restricted stock units granted under the plan are subject to continuous service. Options granted under the plans are granted at a price per share equivalent to the fair market value on the date of grant. Recipients of option grants who possess more than 10% of the combined voting power of the Company (a "10% Shareholder") are subject to certain limitations, and incentive stock options granted to such recipients are at a price no less than 110% of the fair market value at the date of grant.

Restricted Stock Units

Restricted stock unit activity for the year ended December 31, 2020 is as follows (in thousands, except per share data):

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Balance, December 31, 2019	4,544	$ 67.30
Awarded	1,425	147.46
Released	(1,253)	66.79
Forfeited	(361)	76.55
Balance, December 31, 2020 - outstanding	4,355	$ 92.91

The grant-date fair value of restricted stock units granted during the years ended December 31, 2020, 2019 and 2018 was $210.1 million, $195.2 million and $184.7 million, respectively. The fair value of restricted stock units that vested during the years ended December 31, 2020, 2019 and 2018 was $83.7 million, $40.5 million and $11.4 million, respectively.

Total unrecognized compensation cost related to restricted stock units awarded to employees as of December 31, 2020 was $336.4 million, which the Company expects to recognize over 2.26 years.

Stock options

The following table summarizes the Company's stock option activities under the 2008 Plan and 2017 Plan (in thousands, except per share data):

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (Years)	Weighted Average Grant Date Fair Value Per Share	Aggregate Intrinsic Value
Balance, December 31, 2019	11,124	$ 14.84	6.2	—	
Granted	599	145.17	—	$ 54.39	
Exercised	(2,854)	5.89	—	—	
Forfeited and expired	(136)	48.04	—	—	
Balance, December 31, 2020 - outstanding	8,733	$ 26.19	5.7	—	$2,670,743
Options exercisable at December 31, 2020	6,144	$ 8.00	4.8	—	$1,990,694

The weighted average grant-date fair value of options granted during the years ended December 31, 2020, 2019 and 2018 was $54.39, $39.23 and $22.96, respectively. The intrinsic value for options exercised in the years ended December 31, 2020, 2019 and 2018 was $470.8 million, $474.2 million and $445.9 million, respectively. Intrinsic value represents the difference between the fair values of the Company's common stock and the options' exercise price on the date of grant.

As of December 31, 2020, the Company had $50.8 million of unrecognized stock compensation expense related to unvested stock options that is expected to be recognized over a weighted-average period of approximately 1.78 years.

Stock-based Compensation

The Company measures the cost of employee services received in exchange for an equity award based on the grant date fair value of the award. Generally, stock options granted to employees vest 25% after one year and then 1/48th monthly thereafter and have a term of ten years. Restricted stock units generally vest over 4 years. For the years ended December 31, 2020, 2019, and 2018, the amount of stock-based compensation capitalized as part of internal use software was not material.

The following table shows total stock-based compensation expense for the years ended December 31, 2020, 2019 and 2018 (in thousands):

	Years Ended December 31,		
	2020	2019	2018
Cost of platform revenue	$ 847	$ 342	$ 97
Cost of player revenue	1,407	1,072	469
Research and development	58,412	40,036	18,538
Sales and marketing	42,846	24,179	10,459
General and administrative	30,564	19,546	8,111
Total stock-based compensation	$ 134,076	$ 85,175	$ 37,674

The fair value of options granted under the 2008 Plan and 2017 Plan is estimated on the grant date using the Black-Scholes option-valuation model. This valuation model for stock-based compensation expense requires the Company to make certain assumptions and judgments about the variables used in the calculation, including the expected term, the expected volatility of the Company's common stock, an assumed risk-free interest rate, and expected dividends. The Company uses the straight-line method for expense recognition. The Company recognizes forfeitures as they occur.

Fair Value of Common Stock: The Company uses the market closing price for the Class A common stock as reported on The Nasdaq Global Select Market on the date of grant.

Expected Term: The Company's expected term represents the period that the Company's stock-based awards are expected to be outstanding and is determined based on the simplified method as described in ASC Topic 718-10-S99-1, *SEC Materials SAB Topic 14, Share-Based Payment*.

Expected Volatility: The Company's volatility factor is estimated using several comparable public company volatilities for similar option terms.

Expected Dividends: The Company has never paid cash dividends and has no present intention to pay cash dividends in the future, and as a result, the expected dividends are $0.

Risk-Free Interest Rate: The Company bases the risk-free interest rate on the implied yield currently available on U.S. Treasury zero coupon issues with a remaining term equivalent to the estimated life of the stock options. Where the expected term of the Company's stock options does not correspond with the term for which an interest rate is quoted, the Company performs a straight-line interpolation to determine the rate from the available term maturities.

The assumptions used to value stock options granted during the years ended December 31, 2020, 2019 and 2018 are as follows:

	Years Ended December 31,		
	2020	**2019**	**2018**
Expected term (in years)	5.0 - 6.7	5.0 - 6.7	5.3 - 6.8
Risk-free interest rate	0.22 - 1.67%	1.35 - 2.56%	2.32 - 2.88%
Expected volatility	36 - 39%	35 - 36%	38 - 40%
Dividend rate	—	—	—

12. COMMITMENTS AND CONTINGENCIES

Manufacturing Purchase Commitments

The Company has various manufacturing contracts with vendors in the conduct of the normal course of its business. In order to manage future demand for its products, the Company enters into agreements with manufacturers and suppliers to procure inventory based upon certain criteria and timing. Some of these commitments are non-cancelable. As of December 31, 2020, the Company had $185.9 million purchase commitments for inventory.

The Company records a liability for non-cancelable purchase commitments in excess of projected demand forecasts. The Company recorded $1.2 million and $0.3 million for these purchase commitments in "Accrued liabilities" as of December 31, 2020 and 2019, respectively.

License Content Commitments

As of December 31, 2020, the Company recognized a liability of $6.2 million in Accrued liabilities and $1.4 million in Other long-term liabilities for licensed content that is available for streaming. As of December 31, 2019, the Company recorded $1.7 million as obligations in Accrued liabilities for licensed content that is available for streaming. The increase in content liability is due to change in the mix of content licensed and the period over which this content is available for streaming.

The Company also enters into contracts with content publishers to acquire content or to buy ad inventory in the future. As of December 31, 2020, the Company had $71.0 million in commitments with content publishers for content or to buy ad inventory that are non-cancellable. These commitments include both content that is available for streaming and is recognized as liabilities as well as content that is not yet available for streaming or ad inventories not yet purchased.

Letters of Credit

As of December 31, 2020 and 2019, the Company had irrevocable letters of credit outstanding in the amount of $30.9 million and $31.8 million, respectively, related to facilities leases. The letters of credit have various expiration dates through 2030.

Contingencies

The Company accrues for loss contingencies, including liabilities for intellectual property licensing claims, when it believes such losses are probable and reasonably estimable. These contingencies are reviewed at least quarterly and adjusted to reflect the impact of negotiations, estimated settlements, legal rulings, advice of legal counsel and other information and events. The resolution of these contingencies and of other legal proceedings can be, however, inherently unpredictable and subject to significant uncertainties.

As of December 31, 2020, the Company does not have any loss contingencies that are material. During the year ended December 31, 2019, the Company recorded expenses of $9.9 million, in total cost of revenue, for various claims related to patent infringements. During the year ended December 31, 2018, the Company changed its estimate of certain liabilities previously recorded for intellectual property licensing and released $8.9 million as a result of its assessment that the likelihood of payment is now remote. The reversal of $8.9 million is recorded within cost of revenue, player during the year ended December 31, 2018, in the consolidated statements of operations.

From time to time, the Company is subject to legal proceedings, claims, and investigations in the ordinary course of business, including claims relating to employee relations, business practices and patent infringement. The Company is involved in litigation matters not listed herein. Although the results of these proceedings, claims, and investigations cannot be predicted with certainty, the Company does not believe that the final outcome of any matters that it is currently involved in are reasonably likely to have a material adverse effect on its business, financial condition, or results of operations.

Indemnification

In the ordinary course of business, the Company has entered into contractual arrangements which provide indemnification provisions of varying scope and terms to business partners and other parties with respect to certain matters, including, but not limited to, losses arising out of the Company's breach of such agreements and out of intellectual property infringement claims made by third parties. The Company's obligations under these agreements may be limited in terms of time or amount, and in some instances, the Company may have recourse against third parties for certain payments. In addition, the Company has entered into indemnification agreements with its directors and certain of its officers that will require it, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers.

It is not possible to determine the maximum potential amount under these indemnification obligations due to the limited history of prior indemnification claims and the unique facts and circumstances involved in each agreement. To date, the Company has not incurred any material costs as a result of such obligations and have not accrued any liabilities related to such obligations in the consolidated financial statements.

13. INCOME TAXES

The components of loss before income taxes consist of the following (in thousands):

	Years Ended December 31,		
	2020	2019	2018
United States	$ (21,107)	$ (63,453)	$ (11,128)
Foreign	2,655	2,534	1,795
Net loss before income taxes	$ (18,452)	$ (60,919)	$ (9,333)

The income tax (benefit) expense consisted of the following (in thousands):

	Years Ended December 31,		
	2020	2019	2018
Current:			
Federal	$ (219)	$ (47)	$ —
State	620	244	114
Foreign	743	108	184
	1,144	305	298
Deferred:			
Foreign	(2,089)	(1,287)	(774)
Total	$ (945)	$ (982)	$ (476)

The following is a reconciliation of the statutory federal income tax rate to the Company's effective tax rate:

	Years Ended December 31,		
	2020	2019	2018
U.S. federal income tax at statutory rate	21.0%	21.0%	21.0%
U.S. state and local income taxes	(3.2)	(0.4)	(1.3)
Change in valuation allowance	(698.4)	(213.4)	(1,039.4)
Federal research and development tax credit	102.9	30.8	166.2
Stock-based compensation	577.8	158.0	859.4
Meals and Entertainment	(1.6)	(1.4)	(6.6)
Permanent items	—	—	(1.1)
Foreign rate differential	—	(0.6)	(1.5)
Acquisition costs	—	(1.3)	—
Section 162(m) limitation	(7.2)	(1.4)	—
State apportionment change	4.4	1.3	—
Tax rate change	—	(0.4)	2.4
Provision to return true-up	9.4	9.9	5.9
Other	0.1	(0.5)	0.1
Effective tax rate	5.2%	1.6%	5.1%

Significant components of the Company's deferred income tax assets and liabilities consist of the following (in thousands):

	As of December 31,	
	2020	2019
Deferred tax assets:		
Net operating loss carryforwards	$ 379,613	$ 263,512
Reserves and accruals	14,131	10,425
Research and development credits	104,110	73,442
Lease Obligation	91,373	81,639
Stock-based compensation	28,318	17,494
Total deferred tax assets	617,545	446,512
Deferred tax liabilities:		
Right-of-use asset	(70,755)	(72,243)
Depreciation and amortization	(11,707)	(10,916)
Total deferred tax liabilities	(82,462)	(83,159)
Valuation allowance	(530,887)	(361,233)
Net deferred tax assets	$ 4,196	$ 2,120

A valuation allowance is provided when it is more likely than not that some portion of the deferred tax assets will not be realized through future operations. As a result of the Company's analysis of all available objective evidence, both positive and negative, as of December 31, 2020, management believes it is more likely than not that the U.S. deferred tax assets will not be fully realizable. Accordingly, the Company has provided a full valuation allowance against its U.S. deferred tax assets.

The Company's valuation allowance increased by $169.7 million and $178.9 million during the years ended December 31, 2020 and 2019, respectively, primarily due to U.S. federal and state tax losses and credits incurred during the period.

For federal and state income tax reporting purposes, respective net operating loss carryforwards of $1,423.1 million and $1,273.9 million are available to reduce future taxable income, if any. These net operating loss carryforwards will begin to expire in 2028 for federal and certain state net operating losses have expired in 2020. The federal net operating loss generated subsequent to 2017 can be carried forward indefinitely.

For U.K. and Denmark income tax reporting purposes, the net operating loss carryforward of $17.6 million and $0.8 million, respectively, is available to reduce the future taxable income, if any. U.K. and Denmark net operating loss can be carried forward indefinitely. The Company also has U.K. research and development tax credit carryforwards of $0.3 million. The credit can be carried forward indefinitely.

As of December 31, 2020, the Company has research and development tax credit carryforwards of $82.6 million and $59.4 million for federal and state income tax purposes, respectively. If not utilized, the federal and state carryforwards will begin to expire in 2028 and 2035, respectively.

The Internal Revenue Code of 1986, as amended (the "Code"), contains provisions that may limit the net operating loss and credit carryforwards available for use in any given period upon the occurrence of certain events, including a statutorily defined significant change in ownership. Utilization of the net operating loss and tax credit carryforwards is subject to an annual limitation due to an ownership change, as defined by section 382 of the Code. The Company has assessed whether any section 382 ownership change has occurred since its formation and determined that a section 382 ownership change occurred on December 18, 2009 and tax attributes generated by the Company through the ownership change date are subject to the limitation.

A section 382 study was completed for dataxu covering the period from inception beginning May 1, 2008 through acquisition date of November 8, 2019. Based on the study, the Company identified four ownership changes for Section 382 purposes. As such, tax attributes generated by dataxu through the ownership change dates are subject to the limitation.

The total amount of unrecognized tax benefits as of December 31, 2020 is $29.2 million, of which $28.3 million is composed of research and development credits and $0.9 million is related international activities. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	As of December 31,	
	2020	**2019**
Unrecognized tax benefits at beginning of year	$ 19,487	$ 14,541
Gross increase for tax positions of current year	9,959	10,378
Gross decrease due to statue expiration	(75)	(88)
Gross decrease for tax positions of prior years	(196)	(5,344)
Unrecognized tax benefits balance at end of year	$ 29,175	$ 19,487

The Company recognizes interest and penalties related to unrecognized tax benefits as a component of its income tax expense. As of December 31, 2020, the Company recorded $0.2 million of accrued interest and penalties related to uncertain tax positions.

Change in the Company's unrecognized tax benefits, if any, would have an immaterial impact on its effective tax rate. The Company does not expect its gross unrecognized tax benefits to change significantly within the next 12 months.

The Company files income tax returns in the U.S. federal jurisdiction and various state jurisdictions. The Company is currently under examination by Texas Comptroller for calendar tax years 2015, 2016, and 2017. All tax years remain subject to examination by federal and state authorities. These audits include questioning the timing and amount of deductions; the nexus of income among various tax jurisdictions; and compliance with federal, state, and local tax laws.

The Company will continue to indefinitely reinvest earnings from its foreign subsidiaries, which are not significant. While federal income tax expense has been recognized as a result of the Tax Cuts and Jobs Act of 2017, the Company has not provided any additional deferred taxes with respect to items such as foreign withholding taxes, state income tax or foreign exchange gain or loss. It is not practicable for the Company to determine the amount of unrecognized tax expense on these reinvested international earnings.

14. RELATED-PARTY TRANSACTIONS

The Company did not engage in any material related party transactions for the year ended December 31, 2020. There were no material amounts payable to or receivable from related parties as of December 31, 2020.

In prior years, the Company engaged in transactions with one of its strategic investors. With respect to this investor, the Company recorded revenue of $8.5 million and $4.1 million for the years ended December 31, 2019 and 2018, respectively. The Company had an accounts receivable balance of $2.4 million as of December 31, 2019 related to transactions with this investor. The Company incurred expenses of $1.3 million and $1.3 million with this investor for the years ended December 31, 2019 and 2018, respectively. The Company had a payable of $0.4 million to this investor as of December 31, 2019.

In addition, the Company had engaged in transactions with another company in which the Company's Chief Executive Officer holds a majority voting interest and is a member of such company's board of directors, and another member of the Company's Board of Directors is such company's Chief Executive Officer. With respect to transactions with this other company, the Company incurred expenses of $1.2 million for the year ended December 31, 2019. There were no outstanding amounts payable to this other company as of December 31, 2019. The Company did not consummate any transactions with the other company for the year ended December 31, 2018.

15. RETIREMENT PLANS

The Company maintains a 401(k) tax deferred saving plan (the "Savings Plan") for the benefit of qualified employees. Qualified employees may elect to make contributions to the Savings Plan on a biweekly basis, subject to certain limitations. The Company may make contributions to the Savings Plan at the discretion of the Board of Directors. No contributions were made for the years ended December 31, 2020, 2019 and 2018.

In 2014, the Company established a defined contribution plan in the U.K. for its U.K.-based employees. The Company contributed $0.7 million, $0.5 million and $0.4 million to the plan for the years ended December 31, 2020, 2019 and 2018, respectively.

16. NET LOSS PER SHARE

The Company's basic net loss per share is calculated by dividing the net loss by the weighted-average number of shares of common stock outstanding for the period. For purposes of the calculation of diluted net loss per share options to purchase common stock, restricted stock units and unvested shares of common stock issued upon the early exercise of stock options and business acquisitions are considered common stock equivalents, but have been excluded from the calculation of diluted net loss per share as their effect is antidilutive. Because the Company has reported a net loss for the years ended December 31, 2020, 2019 and 2018, diluted net loss per common share is the same as the basic net loss per share for those years.

The table presents the calculation of basic and diluted net loss per share as follows (in thousands, except per share data):

	Years Ended December 31,		
	2020	2019	2018
Numerator:			
Net loss attributable to common stockholders	$ (17,507)	$ (59,937)	$ (8,857)
Denominator:			
Weighted-average shares used in computing net loss per share, basic and diluted	123,978	115,218	104,618
Net loss per share, basic and diluted	$ (0.14)	$ (0.52)	$ (0.08)

The potential common shares that were excluded from the calculation of diluted net loss per share because their effect would have been antidilutive for the periods presented are as follows (in thousands):

	Years Ended December 31,		
	2020	2019	2018
Equity awards to purchase common stock	13,088	15,668	20,057
Unvested shares of common stock issued upon early exercise of stock options and business acquisition	1	31	70
Total	13,089	15,699	20,127

17. SEGMENT INFORMATION

An operating segment is defined as a component of an entity for which discrete financial information is available that is evaluated regularly by the chief operating decision maker ("CODM") for purposes of allocating resources and evaluating financial performance. The Company's CODM is its Chief Executive Officer, and the CODM evaluates performance and makes decisions about allocating resources to its operating segments based on financial information presented on a consolidated basis and on revenue and gross profit for each operating segment. The Company uses the management approach to determine the segment financial information that should be disaggregated and presented separately in the Company's notes to its consolidated financial statements. The management approach is based on the manner by which management has organized the segments within the Company for making operating decisions, allocating resources, and assessing performance.

The Company reports its financial results consistent with the manner in which financial information is viewed by management for decision-making purposes. The Company does not manage operating expenses such as research and development, sales and marketing and general and administrative expenses at the segment level.

The Company is organized into two reportable segments as follows:

Platform

Consists of revenue generated from sale of digital advertising, content distribution services, subscription and transaction revenue share including Premium Subscriptions, sale of branded buttons on remote controls and licensing arrangements with service operators and TV brands.

Player

Consists of revenue generated from sale of streaming players, audio products and accessories through retailers and distributors, as well as directly to customers through the Company's website.

The Company does not allocate property and equipment or any other assets or capital expenditures to reportable segments. Operating expenses are not managed at the segment level.

The Company evaluates the performance of its reportable segments based on the financial measures, including segment gross profit, which are regularly reviewed by the CODM and provide insight into the individual segments and their ability to contribute to Company's operating results.

Customers accounting for 10% or more of segment revenue, net, were as follows:

	Years Ended December 31,		
	2020	2019	2018
Platform segment revenue			
Customer H	13%	*	*
Player segment revenue			
Customer A	10%	16%	15%
Customer B	18%	17%	15%
Customer C	40%	39%	38%

Revenue in international markets was less than 10% in each of the periods presented. Substantially all Company assets were held in the United States and were attributable to the operations in the United States as of December 31, 2020 and 2019.

18. QUARTERLY FINANCIAL DATA (Unaudited)

The following table summarizes the Company's information on total revenue, gross profit, net income (loss) and earnings per share by quarter for the years ended December 31, 2020 and 2019. This data was derived from the Company's unaudited consolidated financial statements (in thousands, except per share data):

	Three Months Ended			
	Dec 31, 2020	Sep 30, 2020	Jun 30, 2020	Mar 31, 2020
Total Revenue	$ 649,886	$ 451,663	$ 356,073	$ 320,766
Gross Profit	305,458	214,824	146,836	141,101
Net income (loss) attributable to common stockholders	67,306	12,947	(43,148)	(54,612)
Basic net income (loss) per share attributable to common stockholders	0.53	0.10	(0.35)	(0.45)
Diluted net income (loss) per share attributable to common stockholders	0.49	0.09	(0.35)	(0.45)

	Three Months Ended			
	Dec 31, 2019	Sep 30, 2019	Jun 30, 2019	Mar 31, 2019
Total Revenue	$ 411,230	$ 260,928	$ 250,101	$ 206,662
Gross Profit	161,647	118,477	114,209	100,891
Net loss attributable to common stockholders	(15,717)	(25,155)	(9,333)	(9,732)
Basic and diluted net loss per share attributable to common stockholders	(0.13)	(0.22)	(0.08)	(0.09)

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as amended, or the Exchange Act) prior to the filing of this Annual Report on Form 10-K. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of the period covered by this Annual Report on Form 10-K, our disclosure controls and procedures were, in design and operation, effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2020 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). Our 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 generally accepted accounting principles.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework set forth in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework set forth in *Internal Control — Integrated Framework (2013)*, our management concluded that our internal control over financial reporting was effective as of December 31, 2020.

The effectiveness of our internal control over financial reporting as of December 31, 2020 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in its report which is included below.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal controls will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Our disclosure controls and procedures and our internal controls over financial reporting have been designed to provide reasonable assurance of achieving their objectives. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Roku, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Roku, Inc. and subsidiaries (the "Company") as of December 31, 2020, 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 Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2020, of the Company and our report dated February 25, 2021, expressed an unqualified opinion on those financial statements and included an explanatory paragraph related to the Company's change in method of accounting for leases in fiscal year 2019 due to the adoption of Accounting Standards Update No. 2016-02, *Leases* (Topic 842).

Basis for Opinion

The Company's management is responsible 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 the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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.

/s/ *DELOITTE & TOUCHE LLP*

San Jose, California

February 25, 2021

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item is incorporated by reference to our definitive Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2020.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to our definitive Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2020.

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

The information required by this item is incorporated by reference to our definitive Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2020.

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

The information required by this item is incorporated by reference to our definitive Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2020.

Item 14. Principal Accounting Fees and Services

The information required by this item is incorporated by reference to our definitive Proxy Statement for the 2020 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of our year ended December 31, 2020.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a)(1) Financial Statements

See Index to Financial Statements in Item 8 of this Report.

(a)(2) Financial Statement Schedule

All financial statement schedules have been omitted as the information is not required under the related instructions or is not applicable or because the information required is already included in the financial statements or the notes to those financial statements.

(a)(3) Exhibits

The documents set forth below are filed herewith or incorporated herein by reference to the location indicated.

Number	Exhibit Title	Incorporated by Reference				
		Form	File No.	Exhibit	Filing Date	Filed Herewith
2.1	Agreement and Plan of Merger, dated October 22, 2019, by and among Roku, Inc., Delaware Acquisition Company, Inc., dataxu, Inc. and Shareholder Representative Services LLC, as Stockholder Representative and Amendment No. 1 to Agreement and Plan of Merger, dated November 8, 2019, by and among Roku, Inc., Delaware Acquisition Company, Inc., dataxu, Inc. and Shareholder Representative Services LLC, as Stockholder Representative.	8-K	001-38211	2.1	11/14/2019	
3.1	Amended and Restated Certificate of Incorporation.	8-K	001-38211	3.1	10/3/2017	
3.2	Amended and Restated Bylaws.	S-1/A	333-220318	3.4	9/18/2017	
4.1	Reference is made to Exhibit 3.1.					
4.2	Form of Class A Common Stock Certificate.	S-1/A	333-220318	4.1	9/18/2017	
4.3	Description of Securities.	10-K	001-38211	4.3	3/2/2020	
10.1 +	Roku, Inc. 2008 Equity Incentive Plan.	S-1	333-220318	10.3	9/1/2017	
10.2 +	Forms of Option Agreement and Option Grant Notice under 2008 Equity Incentive Plan.	S-1	333-220318	10.4	9/1/2017	
10.3 +	Roku, Inc. 2017 Equity Incentive Plan.	S-1/A	333-220318	10.5	9/18/2017	
10.4 +	Forms of Option Agreement and Option Grant Notice under 2017 Equity Incentive Plan.	S-1/A	333-220318	10.6	9/18/2017	
10.5 +	Forms of Restricted Stock Unit Grant Notice and Award Agreement under 2017 Equity Incentive Plan.	S-1/A	333-220318	10.7	9/18/2017	
10.6 +	Forms of Option Agreement and Option Grant Notice under 2017 Equity Incentive Plan.	10-Q	001-38211	10.24	8/10/2018	
10.7 +	Forms of Restricted Stock Unit Grant Notice and Award Agreement under 2017 Equity Incentive Plan (Non-Employee Directors).	10-Q	001-38211	10.7	8/9/2019	
10.8 +	Forms of Option Grant Notice and Option Agreement under 2017 Equity Incentive Plan (Non-Employee Directors).	10-Q	001-38211	10.8	8/9/2019	
10.9 +	Forms of Restricted Stock Unit Grant Notice and Award Agreement under 2017 Equity Incentive Plan (Employees).	10-K	001-38211	10.7	3/2/2020	
10.10 +	Forms of Restricted Stock Unit Grant Notice and Award Agreement under 2017 Equity Incentive Plan.	10-Q	001-38211	10.5	11/6/2020	
10.11 +	Forms of Option Grant Notice and Award Agreement under 2017 Equity Incentive Plan.	10-Q	001-38211	10.6	11/6/2020	
10.12 +	Forms of Stock Option Grant Notice and Option Agreement Under 2017 Equity Incentive Plan (Non-Employee Directors Initial Award).					X
10.13 +	Forms of Stock Option Grant Notice and Option Agreement Under 2017 Equity Incentive Plan (Non-Employee Directors Annual Award).					X
10.14 +	Forms of Restricted Stock Unit Grant Notice and Award Agreement Under 2017 Equity Incentive Plan (Non-Employee Directors).					X

10.15 +	Executive Supplemental Stock Option Program 2021 Enrollment Form.	8-K	001-38211	10.1	10/6/2020	
10.16 +	Forms of Option Grant Notice and Executive Supplemental Stock Option Agreement and Option Grant Notice under 2017 Equity Incentive Plan.	8-K	001-38211	10.2	12/7/2018	
10.17 +	Roku, Inc. 2017 Employee Stock Purchase Plan.	S-1/A	333-220318	10.8	9/18/2017	
10.18 +	Form of Indemnification Agreement, by and between Roku, Inc. and each of its directors and executive officers.	S-1A	333-220318	10.9	9/18/2017	
10.19 +	Employment Terms Agreement, by and between Roku, Inc. and Stephen Kay, dated November 15, 2013.	S-1	333-220318	10.9	9/1/2017	
10.20 +	Employment Terms Agreement, by and between Roku, Inc. and Steve Louden, dated June 11, 2015.	S-1	333-220318	10.11	9/1/2017	
10.21 +	Employment Terms Agreement, by and between Roku, Inc. and Scott Rosenberg, dated October 30, 2012.	S-1	333-220318	10.13	9/1/2017	
10.22 +	Employment Terms Agreement, by and between Roku, Inc. and Mustafa Ozgen, dated January 17, 2019.	10-K	001-38211	10.18	3/2/2020	
10.23 +	Independent Contractor Services Agreement by and between Roku, Inc. and Neil Hunt, dated September 10, 2017.	S-1/A	333-220318	10.30	9/18/2017	
10.24 +	Roku, Inc. Amended and Restated Severance Benefit Plan.	8-K	001-38211	99.1	7/16/2019	
10.25	Coleman Highline Office Lease by and between Roku, Inc. and Cap Phase 1, LLC dated August 1, 2018 (1155 Coleman Ave).	10-Q	001-38211	10.26	8/10/2018	
10.26	Coleman Highline Office Lease by and between Roku, Inc. and Cap Oz 34, LLC dated August 1, 2018 (1173/1167/1161 Coleman Ave).	10-Q	001-38211	10.27	8/10/2018	
10.27	First Amendment to Coleman Highline Office Lease by and between Roku, Inc. and Cap Phase 1, LLC dated November 12, 2018 (1155 Coleman Ave).	10-K	001-38211	10.30	3/1/2019	
10.28	First Amendment to Coleman Highline Office Lease by and between Roku, Inc. and Cap Oz 34, LLC dated November 18, 2018 (1173/1167/1161 Coleman Ave).	10-K	001-38211	10.31	3/1/2019	
10.29	Credit Agreement, dated as of February 19, 2019, by and among Roku, Inc., Morgan Stanley Senior Funding, Inc., as lender, issuing bank, administrative agent and collateral agent, and the other issuing banks and lenders party thereto from time to time.	10-K	001-38211	10.32	3/1/2019	
10.30	Assignment and Assumption of Lease, Landlord’s Consent and First Amendment of Lease, dated as of April 30, 2019, by and among Roku, Inc., 8x8, Inc. and CAP Phase I, LLC.	10-Q	001-38211	10.1	8/9/2019	
10.31	Second Amendment to Coleman Highline Office Lease by and between Roku, Inc. and Cap Phase 1, LLC dated April 30, 2019 (1155 Coleman Ave).	10-Q	001-38211	10.2	8/9/2019	
10.32	Second Amendment to Coleman Highline Office Lease by and between Roku, Inc. and Cap Oz 34, LLC dated April 30, 2019 (1173/1167/1161 Coleman Ave).	10-Q	001-38211	10.3	8/9/2019	
10.33	Incremental Assumption and Amendment No. 1 to Credit Agreement, dated as of May 3, 2019, by and among Roku, Inc., Morgan Stanley Senior Funding, Inc., as administrative agent and issuing bank, and the other issuing banks and lenders party thereto from time to time.	10-Q	001-38211	10.4	8/9/2019	
10.34	Equity Distribution Agreement, dated May 13, 2020, by and among Roku, Inc., Morgan Stanley & Co. LLC and Citigroup Global Markets Inc.	10-Q	001-38211	1.1	5/13/2020	
21.1	List of Subsidiaries of Roku, Inc.					X

23.1	Consent of Independent Registered Public Accounting Firm.	X
24.1	Power of Attorney	X
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	X
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	X
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. *	X
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. *	X
101.INS	Inline XBRL Instance Document.	X
101.SCH	Inline XBRL Taxonomy Extension Schema Document.	X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.	X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.	X
101.LAB	Inline XBRL Taxonomy Extension Labels Linkbase Document.	X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.	X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).	

* These exhibits are furnished with this Annual Report on Form 10-K and are not deemed filed with the Securities and Exchange Commission and are not incorporated by reference in any filing of Roku, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date hereof and irrespective of any general incorporation language contained in such filings.

+ Indicates 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 Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, on this 25th day of February 2021.

Roku, Inc.

By: /s/ Anthony Wood

Anthony Wood
President and Chief Executive Officer
(Principal Executive Officer)

By: /s/ Steve Louden

Steve Louden
Chief Financial Officer
(Principal Financial Officer)

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