

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2021
OR

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

For the transition period from ___ to ___
Commission file number 001-40653

Duolingo, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

45-3055872

(I.R.S. Employer Identification No.)

5900 Penn Avenue
Pittsburgh, Pennsylvania 15206
(412) 567-6602

(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 per share	DUOL	The Nasdaq Stock Market LLC

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.

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, 2021, the last day of the registrant's most recently completed second fiscal quarter, the registrant's Class A common stock was not publicly traded. The registrant's Class A common stock, \$0.0001 par value per share, began trading on the Nasdaq on July 28, 2021. As of March 3, 2022, the aggregate market value of the registrant's Class A common stock held by non-affiliates of the registrant was approximately \$1.6 billion (based upon the closing sale price of the Class A common stock on that date on the Nasdaq).

As of March 3, 2022, 22,592,387 shares of the registrant's Class A common stock were outstanding, and 16,032,907 shares of the registrant's Class B common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for its 2022 annual meeting of stockholders, which the registrant intends to file pursuant to Regulation 14A with the Securities and Exchange Commission not later than 120 days after the registrant's fiscal year ended December 31, 2021, are incorporated by reference into Part III of this Annual Report on Form 10-K.

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Special Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. We intend such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements other than statements of historical facts contained in this Annual Report on Form 10-K, including without limitation, statements regarding our business model and strategic plans and our implementation thereof; statements regarding our expectations, beliefs, plans, objectives, prospects, assumptions, future events or expected performance, including our ability to compete in our industry; the sufficiency of our cash, cash equivalents and investments; and the plans and objectives of management for future operations and capital expenditures are forward-looking statements.

Without limiting the generality of the foregoing, you can identify forward-looking statements because they contain words such as "may," "will," "shall," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential," "goal," "objective," "seeks," or "continue" or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans, or intentions. Such forward-looking statements are subject to a number of known and unknown risks, uncertainties and assumptions, and actual results may differ materially from those expressed or implied in the forward-looking statements due to various factors, including, but not limited to:

- our ability to retain and grow our users and sustain their engagement with our products;
- competition in the online language learning industry;
- our limited operating history;
- our ability to achieve profitability;
- our ability to manage our growth and operate at such scale;
- the success of our investments;
- our reliance on third-party platforms to store and distribute our products and collect revenue;
- our reliance on third-party hosting and cloud computing providers;
- our ability to compete for advertisements;
- acceptance by educational organizations of technology-based education; and
- those identified in Part I. Item 1A. "Risk Factors" and Part II. Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this Annual Report on Form 10-K.

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

You should not rely upon forward-looking statements as predictions of future events. We have based the forward-looking statements contained in this Annual Report on Form 10-K primarily on our current expectations, estimates, forecasts, and projections about future events and trends that we believe may affect our business, results of operations, financial condition, and prospects. Although we believe that we have a reasonable basis for each forward-looking statement contained in this Annual Report on Form 10-

K, we cannot guarantee that the future results, levels of activity, performance, or events and circumstances reflected in the forward-looking statements will be achieved or occur at all. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this Annual Report on Form 10-K. The results, events, and circumstances reflected in the forward-looking statements may not be achieved or occur, and actual results, events, or circumstances could differ materially from those described in the forward-looking statements. You should not place undue reliance on our forward-looking statements.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this Annual Report on Form 10-K, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain, and you are cautioned not to unduly rely upon these statements.

The forward-looking statements made in this Annual Report on Form 10-K relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statements made in this Annual Report on Form 10-K to reflect events or circumstances after the date of this Annual Report on Form 10-K or to reflect new information or the occurrence of unanticipated events, except as required by law.

You should read this Annual Report on Form 10-K and the documents that we reference in this Annual Report on Form 10-K completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in this Annual Report on Form 10-K by these cautionary statements.

Unless the context otherwise requires, all references in this Annual Report on Form 10-K to “Duolingo,” the “Company”, “we,” “our,” “us,” or similar terms refer to Duolingo, Inc. and its subsidiaries.

Special Note Regarding Key Operating Metrics

We manage our business by tracking several operating metrics, including monthly active users (MAUs), daily active users (DAUs), paid subscribers, and bookings. We believe each of these operating metrics provides useful information to investors and others. For information concerning these metrics as measured by us, see Part II, Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Key Operating Metrics and Non-GAAP Financial Measures.”

While these metrics are based on what we believe to be reasonable estimates of our user base for the applicable period of measurement, there are inherent challenges in measuring how our platform is used. These metrics are determined by using internal data gathered on an analytics platform that we developed and operate and have not been validated by an independent third party. This platform tracks user account and session activity. If we fail to maintain an effective analytics platform, our metrics calculations may be inaccurate.

We believe that these metrics are reasonable estimates of our user base for the applicable period of measurement, and that the methodologies we employ and update from time-to-time to create these metrics are reasonable bases to identify trends in user behavior. Because we update the methodologies we employ to create metrics, our operating metrics may not be comparable to those in prior periods. See

the section titled “Risk Factors—Our user metrics and other estimates are subject to inherent challenges in measurement, and real or perceived inaccuracies in those metrics may significantly harm and negatively affect our reputation and our business”. Other companies, including companies in our industry, may calculate these metrics differently.

Risk Factors Summary

The following is a summary of the principal risks that could materially adversely affect our business, results of operations, and financial condition, all of which are more fully described in Part I, Item 1A. “Risk Factors.” This summary should be read in conjunction with Part I, Item 1A. “Risk Factors” section and should not be relied upon as an exhaustive summary of the material risks facing our business.

- If we fail to keep existing users or add new users, or if our users decrease their level of engagement with our products or do not convert to paying users, our revenue, financial results and business may be significantly harmed.
- The online language learning industry is highly competitive, with low switching costs and a consistent stream of new products and entrants and innovation by our competitors may disrupt our business.
- Changes we make to our existing brand and products, or the introduction of a new brand or products, could fail to attract or keep users or generate revenue and profits.
- Our costs are continuing to grow, and some of our investments have the effect of reducing our operating margin and profitability. If our investments are not successful, our business and financial performance could be harmed.
- Our quarterly and annual operating results and other operating metrics may fluctuate from period to period, which makes these metrics difficult to predict.
- Our operating metrics are subject to inherent challenges in measurement, and real or perceived inaccuracies in those metrics may negatively affect our reputation and our business.
- We rely on third-party platforms such as the Apple App Store and the Google Play Store to distribute our products and collect payments. If we are unable to maintain a good relationship with such platform providers, if their terms and conditions or pricing changed to our detriment, if we violate, or if a platform provider believes that we have violated, the terms and conditions of its platform, or if any of these platforms loses market share or falls out of favor or is unavailable for a prolonged period of time, our business will suffer.
- We rely on third-party hosting and cloud computing providers, like Amazon Web Services (“AWS”) and Google Cloud, to operate certain aspects of our business. A significant portion of our product traffic is hosted by a limited number of vendors, and any failure, disruption or significant interruption in our network or hosting and cloud services could adversely impact our operations and harm our business.
- Our business is subject to complex and evolving US and international laws and regulations. Many of these laws and regulations are subject to change and uncertain interpretation, and could result in claims, changes to our business practices, monetary penalties, increased cost of operations, or declines in user growth or engagement, or otherwise harm our business.
- Our success depends, in part, on our ability to access, collect, and use personal data about our users and payers, and to comply with applicable data privacy laws.
- The varying and rapidly-evolving regulatory framework on privacy and data protection across jurisdictions could result in claims, changes to our business practices, monetary penalties,

increased cost of operations, or declines in user growth or engagement, or otherwise harm our business.

- From time to time, we may be party to intellectual property-related litigation and proceedings that are expensive and time consuming to defend, and, if resolved adversely, could materially adversely impact our business, financial condition and results of operations.
- We may fail to adequately obtain, protect and maintain our intellectual property rights or prevent third parties from making unauthorized use of such rights.
- The dual class structure of our common stock has the effect of concentrating voting control with those stockholders who held our capital stock prior to the listing of our Class A common stock on the Nasdaq Global Select Market, including our directors, executive officers, and 5% stockholders and their respective affiliates, who held in the aggregate 92.4% of the voting power of our capital stock as of December 31, 2021. This ownership will limit or preclude your ability to influence corporate matters, including the election of directors, amendments of our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval.

Part I

Item 1. Business

Our Mission

Our mission is to develop the best education in the world and make it universally available.

Although education can open the door to economic opportunity, it is also among the principal sources of inequality: the privileged can get the best education in the world, while those with fewer resources, especially in developing countries, may not be able to get even basic schooling. That is why we started Duolingo. We believe that everyone, regardless of how wealthy they are, should have access to high quality education. And for the first time in history, the technology necessary to enable this is in the hands of billions of people, in the form of a smartphone. At Duolingo, we build products native to the smartphone—bite-sized, on-demand and engaging—to make learning accessible and effective, opening doors for everyone alike.

Who We Are

Duolingo is a technology company founded by two engineers, Luis von Ahn and Severin Hacker. Luis and Severin met at Carnegie Mellon University, where Luis was a professor in the Computer Science Department and Severin was his Ph.D. student. Luis, a MacArthur Fellow, grew up in Guatemala and witnessed firsthand the tremendous impact that access to high quality education can have on people's lives. Luis and Severin bonded over the dream of building an intelligent learning system informed by massive amounts of user engagement data that could deliver superior learning outcomes.

Our team, which as of December 31, 2021, consisted of over 500 passionate employees, including more than 210 engineers, aims to build the most sophisticated education platform in the world. We believe that by using modern technology, the very best engineering talent, and a mission-driven approach, we can create better learning experiences and meaningful improvements in efficacy. Our products are powered by sophisticated data analytics and artificial intelligence that make it easier for learners to stay motivated, master new material, and achieve their learning goals.

Our Business

With over 500 million downloads, our flagship app has organically become the world's most popular way to learn languages and the top-grossing Education app in the App Stores. For many, Duolingo has become synonymous with language learning: for example, on Google, people search the term "Duolingo" approximately seven times more often than "learn Spanish." We are particularly proud that our learners come from the entire socioeconomic spectrum, ranging from billionaires and celebrities to recently resettled refugees, a rare instance in which more money does not imply better access to a high quality educational platform.

We started with a focus on teaching languages because of the profound impact learning a new language can have on people's lives, as well as the large market opportunity. According to HolonIQ, approximately 2 billion people across the world are learning a new language, and consumer spend on both online and offline language learning represents a \$61 billion market. Driving much of the demand for language learning is the reality that English can unlock tremendous economic opportunity. According to the World Economic Forum, job seekers around the world with exceptional English skills can expect to earn 30-50% higher salaries than their peers with average English ability. And the power of language learning is not limited to economic advancement. Learning another language can unlock new experiences and deep human connections, ranging from navigating a first trip to another country, to communicating with family members of an older generation.

As of December 31, 2021, Duolingo offers courses in over 40 languages to approximately 42 million monthly active users. To put our scale in context, there are more people in the United States learning languages on Duolingo than there are foreign language learners in all United States high schools combined, and there are more people learning certain languages on Duolingo, like Irish and Hawaiian, than there are native speakers of those languages worldwide.

Duolingo is the learning product built for the mobile generation: bite-sized, on-demand and fun. We believe that the hardest part of learning something new is staying motivated, so we build gamification features into our platform to motivate our learners, and we run thousands of A/B tests to optimize each feature for maximum engagement. Our obsession with user experience has yielded affinity and loyalty in our learners, which in turn has helped us cultivate millions of brand advocates who tell their friends and families about our products. Our brand has become part of pop culture, appearing in internet memes and in sketches on late night comedy shows. As an example, #duolingo on TikTok has approximately half a billion views, and our official account has been highlighted by numerous press outlets. All of this has allowed us to grow our business organically, primarily relying on word-of-mouth virality rather than paid user acquisition.

Our millions of learners complete over 500 million exercises every day, creating what we believe to be the world's largest learning dataset. This data powers the high volume A/B testing and novel artificial intelligence (“AI”) that we use to continually improve how well we teach. According to an internal study, people who complete five “Units” of Duolingo, or roughly half of one of our courses, learn as much as students taking four university semesters of language education—and they do so in half the time.

We intentionally do not put our learning content behind a paywall. Anyone can download the Duolingo app, use it for as long as they like, and complete as many of our courses as they choose, all without paying anything. Learners who use Duolingo for free see an ad at the end of each lesson, whereas learners who purchase Duolingo Plus, our premium subscription, enjoy an ad-free experience and access to additional features. As of December 31, 2021 approximately 6% of our monthly active users were paid subscribers of Duolingo Plus. Our paid subscriber penetration has increased steadily since we launched Duolingo Plus in 2017 and, combined with our user growth, has led to revenue growth each year since. We have a strong future roadmap of feature improvements and optimizations, and believe we are in the early stages of increasing our paid subscriber penetration.

Our freemium business model, which means allowing users to access our content for free and charging a subscription for additional features, is core to our success because it enables significant user scale. Our growth and competitive differentiation have been driven by two mutually-reinforcing flywheels: our learning flywheel and our investment flywheel.

- **Learning flywheel:** The greater the scale of our learner base, the more we can use insights from data analytics to improve both engagement and efficacy. The more engaging our products are, and the more effectively we teach, the more our learners tell their friends about Duolingo and the more we continue to grow our learner base.
- **Investment flywheel:** Our learner scale and word-of-mouth growth allow us to focus our capital investments on product innovation and data analytics, as opposed to brand or performance marketing. The more learners use Duolingo and convert into paid subscribers, the more we are able to invest in creating an even more delightful, engaging and effective learning experience. In turn, this increases our popularity and user scale, as well as the effectiveness of our data analytics, further widening our competitive moat.

In 2016, we launched the Duolingo English Test, an online, on-demand assessment of English proficiency. Every year, millions of people around the world seek to demonstrate English proficiency for a variety of reasons, including university admissions, work visas, and job applications. We developed the Duolingo

English Test because language assessment has lacked innovation, with the most popular English proficiency tests still administered in physical testing centers and usually costing hundreds of dollars per test. By offering a more accessible, online option that is both rigorous and accurate, we provide greater opportunities for aspiring students and professionals dependent on successful completion of these high stakes assessments. As of December 2021, over 3,000 higher education programs around the world accept Duolingo English Test results as proof of English proficiency for international student admissions. These include 18 of the top 20 undergraduate programs in the United States according to US News and World Report, which include Yale, Stanford, MIT, Duke and Columbia.

We believe that there is an opportunity to diversify the scope of our platform beyond language learning to a variety of subjects, using the same product-focused, mobile-first, gamified approach to education. In 2020 we launched Duolingo ABC, an app for young children that teaches early literacy skills, which won the 2020 Time Magazine “Best New Product” award. New products will leverage our scalable technology platform and benefit from our core competencies in product development, gamification and use of advanced data-driven analytics to deliver quantifiable efficacy. We believe that expanding the scope of our platform to additional learning subjects will further expand our addressable market.

The Duolingo Learning Experience

The Duolingo learning experience sits at the rare intersection of fun and self-improvement. Learners love Duolingo because:

- **It's fun.** Duolingo feels more like a mobile game than an education product. Our bite-sized lessons and gamification features motivate learners to come back each day to continue learning.
- **It's effective.** Learners stick with Duolingo at first because it's fun, and then over time also because they find that it works. Our expert-designed courses help learners build robust speaking, reading, listening, and writing skills, and our data analytics power personalization and superior learning outcomes.
- **It's free.** Every language course on Duolingo is free to access. Learners can spend as much time learning as they want and complete any and every course without paying. This lowers barriers to start learning and to keep learning.

In a world where people are increasingly engaged in immersive, bite-sized, mobile-first experiences, we provide such an experience that also results in learning valuable skills. Indeed, many of our learners prefer to spend time on Duolingo rather than on social media or mobile games because they can learn while still feeling entertained.

Each of our learning and gamification features is carefully crafted to contribute to a learner experience that is defined by several key principles:

- **Low friction.** Beginning the learning journey on Duolingo is easy. Learners select the language they want to learn and are asked to indicate a daily learning goal, which can be as little as five or ten minutes a day. Duolingo is recognized as a gold standard for user experience design, with our onboarding flows used as examples of industry best practices.
- **Motivating game mechanics.** Because we believe that staying motivated is the hardest part of learning something new, we focus relentlessly on keeping learners engaged. Features like Streaks and Leaderboards motivate learners to come back to Duolingo every day, and to spend more time learning each time they do. Ultimately, the high engagement driven by gamification leads to consistent learning and demonstrable efficacy.

- **Beautiful design and engaging storytelling.** We focus obsessively on every detail of design. From the precise shape and color of each button, to the mood of the celebratory animations that congratulate learners upon finishing each lesson, our app is calibrated to maximize learners' delight.
- **Diverse learning experiences informed by robust pedagogy.** Our learning experiences are designed by an in-house team of experts in learning science and second language acquisition. Content in our largest courses is aligned to the Common European Framework of Reference ("CEFR"), an international standard for language proficiency, and the pedagogical structure of each course is unique. For example, Spanish-speakers learning English will encounter a different curriculum than Chinese-speakers learning English.
- **Application of data analytics and artificial intelligence to optimize learning.** We use data from over half a billion exercises completed daily to train sophisticated machine learning algorithms that we deploy to improve learning efficacy. One example of this is our personalization algorithm, called BirdBrain, which is designed to predict the probability that a given learner will get an exercise right or wrong. We use BirdBrain to craft lessons that cater to a learner's specific proficiency level by providing exercises of the appropriate difficulty. This personalization increases learner motivation and improves learning outcomes.
- **Measurable learning outcomes.** All this adds up to a learning experience that helps learners achieve their goals. In 2020, we conducted a formal study to evaluate Duolingo's effectiveness versus traditional university language courses. We found that the Duolingo learners earned proficiency scores comparable to those of the US university students at the end of their fourth semester of French or Spanish. Moreover, the Duolingo learners were able to attain this level of proficiency in about half the time as the university students.

Our Technology Platform

Technology is at the core of everything we do. We utilize the latest in machine learning and data analytics, along with a relentless focus on A/B testing, to fuel our differentiated learning experience.

Highlights of our technology platform include:

- **Large data moat.** With over half a billion exercises completed every day on our platform, we believe we have built the world's largest collection of language-learning data. We leverage this data by developing novel AI models at the intersection of machine learning, natural language processing, and cognitive science, which enable personalized instruction and power new product features that drive both engagement and efficacy.
- **Robust testing framework.** The foundation of our product strategy is our relentless focus on improving learner engagement through A/B testing, and we run hundreds of A/B tests on new product features each quarter. Experiments can be as simple as changing the text or color of a button, or as complex as adding a major new feature like Leaderboards. The velocity of our A/B testing capabilities is a core competency that allows us to optimize the Duolingo learning experience at a rapid pace.
- **Advanced data analytics and machine learning capabilities.** Our machine learning capabilities allow us to leverage our data to optimize the learning experience. One example of this is our machine learning tools that evaluate every learner's answer to every exercise every day and learns to predict the probability that any learner will answer any given exercise correctly. We use these tools to adaptively construct lessons where each exercise is "just right" in terms of difficulty for each learner.
- **Shared infrastructure.** Products across our platform, like our flagship Duolingo language learning app, Duolingo ABC, and the Duolingo English Test, share a singular technology

infrastructure, which allows us to leverage operational efficiencies in implementing new features for each. With our shared infrastructure, we are able to innovate at a higher velocity.

- **Strict data protection and privacy standards.** We are committed to abiding by the strictest privacy standards and do not sell personal data to outside parties.

Our Solutions

The Duolingo Language Learning App

The Duolingo language learning app is the world's most popular way to learn languages. Accessible for free, as of December 2021 it offers courses in over 40 languages to approximately 42 million monthly active users. It is also the top-grossing app globally in the Education category on both Google Play and the Apple App Store. Duolingo can also be accessed by desktop computers via a web browser at <https://duolingo.com>.

Duolingo Plus

While all course content on Duolingo can be accessed for free, our subscription offering, Duolingo Plus, offers learners additional features to enhance their learning experience. In 2021, we launched a family plan, which includes up to six subscribers under one annual plan for \$119.99.

Duolingo English Test: AI-Driven Language Assessment

Launched in 2016, the Duolingo English Test is an online, on-demand, high-stakes English proficiency assessment. Anyone with a computer, webcam, and reliable internet connection can take the test from anywhere, at any time. The test is "computer adaptive," meaning it gets harder or easier depending on the performance of the test taker, and can be completed in less than an hour. As of December 2021, it generally costs \$49 per test.

Duolingo For Schools

Duolingo for Schools is a free, web-based tool that aims to make it easier for teachers to use the Duolingo platform in a structured learning environment, like a classroom. With Duolingo for Schools, teachers can create a dashboard for a class, assign specific Duolingo content to students and track students' progress through the content.

Duolingo ABC

Introduced in 2020, Duolingo ABC is a free app that teaches children ages three to six early literacy skills. Developed by learning experts, Duolingo ABC is aligned with the Common Core State Standards, and is designed based on recommendations by the National Reading Panel.

People and Culture

Attracting and retaining amazing talent is key to our success. As of December 31, 2021, we had over 500 employees. Most of our employees are located at our headquarters in Pittsburgh, Pennsylvania, and we also have offices in New York, Seattle, Beijing and Berlin. We believe that being located outside of Silicon Valley has helped us cultivate a unique company culture.

Fundamental to Duolingo's culture is our mission orientation. Our mission tends to attract a certain kind of person. Our employees have a very strong sense of social responsibility and are interested in solving hard problems for the benefit of humanity. Over time, we have also developed nine "operating principles" that articulate our values as a company and help guide how we make decisions.

- **Learners first.** Our mission and reason for existing is to make sure everyone in the world has access to high-quality education.
- **Take the long view.** If it works in the short-term but hurts Duolingo in the long-term, it's not right. We make decisions that keep us moving toward our big goals.
- **Prioritize ruthlessly.** We can't execute on every good idea. We prioritize the few ideas with the greatest impact so we can put our best efforts behind them.
- **Strive for excellence.** To change how the world learns, we must do world-class work. From the people we hire to the features we ship, we never settle for just okay.
- **We haven't won yet.** Until every person who wants to learn is doing so with Duolingo, we need to keep innovating, pushing the envelope, and learning ways to get better.
- **Test everything.** We measure and test everything so we can make informed decisions based on data.
- **Ship it.** For a good idea to become reality, it needs a plan and a sense of urgency. So go go go!
- **All for one, and one for all.** We stay engaged and make choices that benefit the greater good — because Duolingo's success is our success.
- **Be candid and kind.** We build things together with transparency and care for each other. We offer feedback compassionately but with excellence in mind, and receive it openly and as an opportunity to grow.

As a result of our mission, our culture, and the challenges we work on every day, we believe we have had great success in attracting the best talent. We have a very selective recruitment process: we hire one out of every 340 applicants. We recruit interns and new graduates from the top computer science, design, and business programs in the country. We also recruit experienced professionals from top technology companies—and many of them relocate from Silicon Valley to Pittsburgh.

Diversity, Equity, Inclusion, and Belonging is also core to who we are. We are proud to say that Duolingo was founded by two immigrants and that our employees come from over 30 countries. More than half of our employees are women-identifying or people of color. A third of our C-suite executives are women-identifying, including our Chief People Officer, Chief Marketing Officer, and Senior Vice President of Engineering. Today, our engineering organization is more than 30% women-identifying.

Employees also stay at Duolingo for a long time. In 2021, our annual attrition was less than 6%. We believe that the longevity of our employees provides us with a key advantage.

Sales & Marketing

For almost a decade, Duolingo's learner community has grown organically through word-of-mouth virality. In recent years, we have made investments in marketing to supplement our organic model and amplify the voices of our existing users. Key elements of our sales and marketing strategy include:

- **Brand campaigns.** Our brand marketing increases awareness of Duolingo through online and offline campaigns that drive press, social sharing, and more word-of-mouth virality. Investments in our brand enable us to drive long-term growth by attracting new learners to our platform and keeping existing learners engaged.
- **Owned media marketing.** Our owned media marketing engages our learner community, creating millions of brand advocates who drive word-of-mouth virality by sharing their love of Duolingo within their networks. We send our learners personalized emails and push notifications that

provide progress reports, lesson reminders, and sometimes a simple message of positivity to encourage them to remain engaged.

- **Paid acquisition.** We complement and accelerate our organic user acquisition with strategic and targeted paid marketing spend. Our paid acquisition strategy is focused on targeting high quality user segments that are more likely to subscribe and on investing in new markets to kickstart our organic growth.
- **Geographic expansion.** In markets where our organic awareness is relatively low and opportunity for growth is strong, we hire experienced local marketing managers and engage in localized social media and influencer-led campaigns, app store optimization, and paid advertising to generate interest in our products and drive new learner growth.

Industry Trends

We believe the following market trends will contribute to the continued success of our platform:

- **Mobile-first behaviors are reshaping industries.** In categories ranging from retail to music to dating, consumers are increasingly gravitating to mobile, app-based experiences. We believe that consumer behavior will continue to be shaped by a preference for the convenient, on-demand nature of mobile experiences.
- **The shift towards online learning is accelerating.** Historically, education has lagged behind other industries in the shift from offline to online. However, the COVID-19 pandemic accelerated the already growing shift towards online learning, and we believe its effects are likely to be enduring.
- **Online learners seek engaging, mobile-first experiences.** Consumers are increasingly accustomed to the highly engaging design of social media apps and mobile games. We believe that consumers turning to online learning will not only prefer the convenience and control that mobile apps provide, but also expect experiences to be highly engaging.
- **Adoption of subscription models is growing globally.** Rising adoption of subscription models across the globe is further enabling the shift towards mobile experiences. We believe that as subscriptions increase in popularity across categories, consumers will also gravitate towards subscription models in online learning.

Competition

We believe that our relentless focus on building an engaging and effective language learning product, powered by our freemium model, has led to a leading market position, as measured by downloads, active users, and brand awareness. However, learners have a variety of options when choosing to learn a language. We compete for learners' time, attention, and share of wallet not only with other online and app-based language learning platforms but also with offline forms of language learning. Because of the extensibility of the Duolingo platform beyond language learning, we also compete with language learning assessment providers and literacy platforms.

We believe that our ability to compete successfully depends primarily on the following factors:

- Continued growth in internet access and mobile adoption around the world;
- Our ability to continue to increase our learner base through organic, word-of-mouth growth;
- Our ability to maintain the value and reputation of our brand;
- The scale, growth and engagement of our learners relative to those of our competitors;

- Our ability to introduce new, and improve on existing, features and products in response to competition, learner preferences, and market and industry trends; and
- Our ability to continue developing new monetization features and improving on existing features.

Intellectual Property

We own several trademarks that have been registered, or for which registration applications are pending, in the United States as well as in a number of foreign jurisdictions. These trademarks include, among others, the word marks “Duolingo” and Duolingo in Chinese, and certain logos used in connection with our business, including our mascot Duo. The registrations of these trademarks are effective for varying periods of time and may be renewed periodically provided we comply with all applicable renewal requirements, including, where necessary, the continued use of the trademarks in the applicable jurisdictions in connection with certain goods and services. We may consider pursuing trademark registrations for additional marks and for additional jurisdictions if and to the extent we believe such registrations would be beneficial to our business and cost-effective.

We have registered several domain names, including www.duolingo.com, and we own several registered copyrights covering logos and characters used in our business, including Duo. We also enter into, and rely on, confidentiality and proprietary rights agreements with our employees, consultants, contractors and business partners to protect our trade secrets, proprietary technology and other confidential information. We further protect the use of our proprietary technology and intellectual property through provisions in both our user terms of use on our website and in our agreements with service providers.

In addition to the described trademark and domain name protection, Duolingo has filed two patent applications directed to proprietary techniques we developed for generating language proficiency test questions and evaluating language proficiency as part of an on-going program to identify and protect innovations developed by the company. We expect that this program will continue and increase in size going forward. For information regarding risks related to our intellectual property, please see “Risk Factors—Risks Related to Our Intellectual Property.”

Government Regulation

We are subject to many US federal and state and foreign laws and regulations, including those related to privacy, rights of publicity, data protection, payment processing, disability rights, digital accessibility standards, content regulation, intellectual property, health and safety, competition, protection of minors, consumer protection, and taxation. These laws and regulations are constantly evolving and may be interpreted, applied, created, or amended in a manner that could harm our business. In addition, the application and interpretation of these laws and regulations often are uncertain, particularly in new and rapidly evolving industries.

We collect and use personal information to create online accounts, process e-commerce transactions, provide customer service, support, and for other purposes. The regulatory framework for data protection, privacy and information security is evolving rapidly. The US Federal Trade Commission (“FTC”) and many state attorneys general are applying federal and state consumer protection laws to require that the online collection, use and dissemination of data, the presentation of website or other electronic content, and comply with certain standards for notice, choice, security and access. Courts may also adopt these developing standards. A number of states, including California and Virginia, have enacted laws or are considering the enactment of laws governing the personal information received from consumers, or imposing new requirements around the collection, use, sharing, and handling of data collected from or about consumers or their devices. In many cases, the specific limitations imposed by these standards are subject to interpretation by courts and other governmental authorities.

The Children's Online Privacy Protection Act ("COPPA") applies to operators of commercial websites and online services directed to US children under the age of 13 that collect personal information from children and operators of general audience sites with actual knowledge that they are collecting information from US children under the age of 13. Our language learning app is aimed at a general audience and we employ an age-gating procedure whereby anyone from the United States identifying themselves as being under the age of 13 during the registration process receives an ad-free version of the service, with special enrollment procedures and restricted information practices. We also apply age-gating for non-US users of the language learning app according to foreign laws. The Duolingo English Test service requires parental consent for users under the age of 13. The Duolingo ABC app is aimed at users under the age of 13 but does not collect personal information directly from the user beyond that required to use the app.

We have many subscribers who access and pay for our services from outside the United States. Foreign data protection, e-commerce, privacy, consumer protection, content regulation and other laws and regulations are often more restrictive or burdensome than those in the United States, and those governments may attempt to apply such laws extraterritorially or through treaties or other arrangements with US governmental entities. For example, in the EEA we are subject to the GDPR and in the UK we are subject to the UK GDPR. The GDPR and the UK GDPR impose strict data protection compliance requirements including: providing detailed disclosures about how personal data is collected and processed (in a concise, intelligible and easily-accessible form); demonstrating that an appropriate legal basis is in place or otherwise exists to justify data processing activities; granting new rights for data subjects in regard to their personal data (including the right to be "forgotten" and the right to data portability), as well as enhancing data subject rights (e.g., data subject access requests); introducing the obligation to notify data protection regulators or supervisory authorities (and in certain cases, affected individuals) of significant data breaches; defining for the first time pseudonymized (i.e., key-coded) data; imposing limitations on retention of personal data; maintaining a record of processing activities; and complying with the principle of accountability and the obligation to demonstrate compliance through policies, procedures, training and audit.

Available Information

Our website address is www.duolingo.com. The contents of, or information accessible through, our website are not part of this Annual Report on Form 10-K. We make our filings with the SEC, including our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, proxy statements, reports under Section 16 of the Exchange Act and all amendments to those reports, available free of charge on our website as soon as reasonably practicable after we file such reports with, or furnish such reports to, the SEC. The reference to our website address does not constitute incorporation by reference of the information contained on or available through our website, and you should not consider such information to be a part of this Annual Report on Form 10-K.

Item 1A. Risk Factors

Our business, operations and financial results are subject to various risks and uncertainties, including those described below, that could materially adversely affect our business, results of operations, financial condition, and the trading price of our Class A common stock. You should carefully consider the risks and uncertainties described below, together with all of the other information contained in this Annual Report on Form 10-K, including Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements and the related notes. If any of the following risks actually occur, it could harm our business, prospects, operating results, and financial condition and future prospects. In such event, the market price of our Class A common stock could decline and you could lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations. This Annual Report on Form 10-K

also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of factors that are described below and elsewhere in this Annual Report

Risks Related to Our Business and Industry

If we fail to keep existing users or add new users, or if our users decrease their level of engagement with our products or do not convert to paying users, our revenue, financial results and business may be significantly harmed.

The size of our user base and our users' level of engagement and paid conversion are critical to our success. Our financial performance has been and will continue to be significantly determined by our success in adding, keeping and engaging users of our products and converting them into paying subscribers. We expect that the size of our user base will fluctuate or decline in one or more markets from time to time. If people do not perceive our products to be useful, effective, reliable, and/or trustworthy, we may not be able to attract or keep users or otherwise maintain or increase the frequency and duration of their engagement or the percentage of users that are converted into paying subscribers. There is no guarantee that we will not experience an erosion of our user base or engagement levels. User engagement can be difficult to measure, particularly as we introduce new and different products and services. Any number of factors can negatively affect user stickiness, growth, engagement and conversion, including if:

- users increasingly engage with other competitive products or services instead of our own;
- user behavior on any of our products changes, including decreases in the frequency and duration of use of our products and services;
- users feel that their experience is diminished as a result of the decisions we make with respect to the frequency, prominence, format, size and quality of ads that we display;
- users become concerned about our user data practices or other matters related to privacy and the sharing of user data;
- users lose confidence in our ability to teach language or other subjects or have concerns related to security or other factors;
- users are no longer willing to pay for subscriptions or in-app purchases;
- users have difficulty installing, updating or otherwise accessing our products on mobile devices as a result of actions by us or third parties that we rely on to distribute our products and deliver our services;
- we fail to introduce new features, products or services that users find engaging or if we introduce new products or services, or make changes to existing products and services, that are not favorably received;
- initiatives designed to attract and keep users and increase engagement are unsuccessful or discontinued, whether as a result of actions by us, third parties or otherwise;
- there is a decrease in user stickiness as a result of users no longer being interested in pursuing online language learning or reaching a point where they feel our product cannot advance their language ability;
- third-party initiatives that may enable greater use of our products, including low-cost or discounted data plans, are discontinued;

- we adopt terms, policies or procedures related to areas such as user data or advertising that are perceived negatively by our users or the general public;
- we fail to combat inappropriate or abusive activity on our platform;
- we fail to provide adequate customer service to users, marketers or other partners;
- we fail to protect our brand image or reputation;
- we, our partners or companies in our industry are the subject of adverse media reports or other negative publicity, including as a result of our or their user data practices;
- technical or other problems prevent us from delivering our products in a rapid and reliable manner or otherwise affect the user experience, such as unplanned site outages due to our failure or the failure of third-party systems we rely on, security breaches, distributed denial-of-service attacks or failure to prevent or limit spam or similar content;
- there is decreased engagement with our products as a result of internet shutdowns or other actions by governments that affect the accessibility of our products in any of our markets;
- there is decreased engagement with our products, or failure to accept our terms of service, as part of changes that we have implemented, or may implement, in the future in connection with regulations, regulatory actions or otherwise;
- there is decreased engagement with our products as a result of changes in prevailing social, cultural or political preferences in the markets where we operate; or
- there are changes mandated by legislation, regulatory authorities or litigation that adversely affect our products or users.

From time to time, certain of these factors have negatively affected user stickiness, growth and engagement to varying degrees. If we are unable to maintain or increase our user base and user engagement, our revenue and financial results may be materially adversely affected. In addition, we may not experience rapid user growth or engagement in countries that have high mobile device penetration, but due to the lack of sufficient cellular based data networks, consumers rely heavily on Wi-Fi and may not access our products regularly throughout the day. Any decrease in user stickiness, growth or engagement could render our products less attractive to users, which is likely to have a material and adverse impact on our revenue, business, financial condition and results of operations. If our user growth rate slows or declines, we will become increasingly dependent on our ability to maintain or increase levels of user engagement and monetization in order to drive revenue growth.

The online language learning industry is highly competitive, with low switching costs and a consistent stream of new products and entrants, and innovation by our competitors may disrupt our business.

The online language learning industry is highly competitive, with a consistent stream of new products and entrants. As a result, new products, entrants and business models are likely to continue to emerge, both in the United States and abroad. It is possible that a new product could gain rapid scale at the expense of existing brands through harnessing a new technology, or a new or existing distribution channel, creating a new or different approach to connecting people or some other means. We compete for learners' time, attention, and share of wallet not only with other online and app-based language learning platforms, but also with offline forms of language learning. Because of the extensibility of the Duolingo platform beyond

language learning, we also compete with language learning assessment providers and literacy platforms and may compete with other kinds of online learning platforms in the future.

Many of the current and potential competitors, both domestically and internationally, have substantially greater financial, technical, sales, marketing and other resources than we do, as well as in some cases, lower costs. Some competitors offer more differentiated products (for example, online learning as well as physical classrooms and textbooks) that may allow them to more flexibly meet changing customer preferences. Some of our competitors may enjoy better competitive positions in certain geographical regions, user demographics or other key areas that we currently serve or may serve in the future, or in their ability to teach certain languages or to teach speakers of certain languages other languages. These advantages could enable these competitors to offer products that are more appealing to users and potential users than our products, to respond more quickly and/or cost-effectively than us to new or changing opportunities, new or emerging technologies or changes in customer requirements and preferences, or to offer lower prices than ours or to offer free language-learning products or services.

There are a number of free online language-learning opportunities to learn grammar, pronunciation, vocabulary (including specialties in areas such as medicine and business), reading and conversation by means of podcasts and mobile applications, audio courses and lessons, videos, games, stories, news, digital textbooks, and through other means, which compete with our products. We estimate that there are thousands of free mobile applications for language learning; free products are provided in at least 50 languages by private companies, universities and government agencies. Low barriers to entry allow start-up companies with lower costs and less pressure for profitability to compete with us. Competitors that are focused more on user acquisition rather than profitability may be able to offer products at significantly lower prices or for free. As free online translation services improve and become more widely available and used, people may generally become less interested in language learning. If we cannot successfully attract users of these free products and convert a sufficient portion of these free users into paying users, our business could be adversely affected. If free products become more engaging and competitive or gain widespread acceptance by the public, demand for our products could decline or we may have to lower our prices, which could adversely impact our revenue and other results.

Potential competitors also include larger companies that could devote greater resources to the promotion or marketing of their products and services, take advantage of acquisition or other opportunities more readily or develop and expand their products and services more quickly than we do. For example, in 2020, Apple released "Translate," an iOS translation app developed by Apple for iOS devices, to translate text sentences or speech between several languages. Potential competitors also include established social media companies that may develop products, features, or services that may compete with ours or operators of mobile operating systems and app stores. These social media and mobile platform competitors could use strong or dominant positions in one or more markets, and ready access to existing large pools of potential users and personal information regarding those users, to gain competitive advantages over us. These may include offering different product features, services or pricing models that users may prefer, which may enable them to acquire and engage users at the expense of our user growth or engagement.

If we are not able to compete effectively against our current or future competitors and products or services that may emerge, the size and level of engagement of our user base may decrease, which could materially adversely affect our business, financial condition and results of operations.

Changes to our existing brand and products, or the introduction of a new brand or products, could fail to attract or keep users or generate revenue and profits.

Our ability to keep, increase, and engage our user base and to increase our revenue depends heavily on our ability to continue to evolve our existing brand and products and to create successful new brands and

products. We may introduce significant changes to our existing brand and products, or acquire or introduce new and unproven brands, products and product extensions, including using technologies with which we have little or no prior development or operating experience. In addition, we often introduce a new product and delay its monetization until the product is more mature and the user base is better established. We have also invested, and expect to continue to invest, significant resources in growing our products to support increasing usage as well as new lines of business, new products, new product extensions and other initiatives to generate revenue. For example, in 2020, we launched our Duolingo ABC app, which has not yet generated any revenue for us. There is no guarantee that investing in new lines of business, new products, new product extensions and other initiatives will succeed. If our new or enhanced brands, products or product extensions fail to engage users, we may fail to attract or keep users or to generate sufficient revenue, operating margin, or other value to justify our investments, and our business may be materially adversely affected.

We have a limited operating history and, as a result, our past results may not be indicative of future operating performance.

We have a limited operating history, which makes it difficult to forecast our future results. You should not rely on our past quarterly operating results as indicators of future performance. You should take into account and evaluate our prospects in light of the risks and uncertainties frequently encountered by companies in rapidly-evolving markets like ours.

We have had operating losses each year since our inception and we may not achieve or maintain profitability in the future.

We have incurred operating losses each year since our inception and we may not achieve or maintain profitability in the future. Although our revenue has increased each quarter since the first quarter of 2018, there can be no assurances that it will continue to do so. Our operating expenses may continue to increase in the future as we increase our sales and marketing efforts and continue to invest in the development of products and services. These efforts may be costlier than we expect and we cannot guarantee that we will be able to increase our revenue to offset our operating expenses. Our revenue growth may slow or our revenue may decline for a number of other possible reasons, including reduced demand for our products or services, increased competition, a decrease in the growth or reduction in size of our overall market, or if we fail for any reason to capitalize on our growth opportunities. If we do not achieve or maintain profitability in the future, it could materially adversely affect our business, financial condition and results of operations.

We have grown rapidly in recent years and have limited operating experience at our current scale of operations. If we are unable to manage our growth effectively, our brand, company culture and financial performance may suffer.

We have experienced rapid growth and demand for our services since inception. We have expanded our operations rapidly and have limited operating experience at our current size. As we have grown, we have increased our employee headcount and we expect headcount growth to continue for the foreseeable future. From December 31, 2018 to December 31, 2021, our headcount grew from approximately 140 employees to over 500 employees. Further, as we grow, our business becomes increasingly complex. To effectively manage and capitalize on our growth, we must continue to expand our sales and marketing, focus on innovative product and content development, upgrade our management information systems and other processes, and obtain more space for our expanding staff. Our continued growth could strain our existing resources, and we could experience ongoing operating difficulties in managing our business across numerous jurisdictions, including difficulties in hiring, training, and managing a diffuse and growing employee base. Failure to scale and preserve our company culture with growth could harm our future success, including our ability to retain and recruit personnel and to effectively focus on and pursue our

corporate objectives. If our management team does not effectively scale with our growth, we may experience erosion to our brand, the quality of our products and services may suffer, and our company culture may be harmed. Moreover, we have been, and may in the future be, subject to legacy claims or liabilities arising from our systems and controls, content or workforce in earlier periods of our rapid development.

Because we have a limited history operating our business at its current scale, it is difficult to evaluate our current business and future prospects, including our ability to plan for and model future growth. Our limited operating experience at this scale, combined with the rapidly-evolving nature of the market in which we operate, substantial uncertainty concerning how these markets may develop, and other economic factors beyond our control, reduces our ability to accurately forecast quarterly or annual revenue. Failure to manage our future growth effectively could have a material adverse effect on our business, financial condition, and operating results.

Our costs are continuing to grow, and some of our investments have the effect of reducing our operating margin and profitability. If our investments are not successful, our business and financial performance could be harmed.

Historically, our costs have increased each year since 2011 and we anticipate that our expenses will continue to increase in the future as we broaden our user base, develop and implement new products, market new and existing products and promote our brands, continue to expand our technical infrastructure, and continue to hire additional employees and contractors to support our expanding operations, including our efforts to focus on privacy, safety, and security. In addition, from time to time we may be subject to settlements, judgments, fines, or other monetary penalties in connection with legal and regulatory developments that may be material to our business. We may also invest in new platforms and technologies. Some of these investments may generate only limited revenue and reduce our operating margin and profitability. If these efforts are not successful, our ability to grow revenue will be harmed, which could materially adversely affect our business and financial performance.

Our quarterly operating results and other operating metrics may fluctuate from quarter to quarter, which makes these metrics difficult to predict.

Our quarterly operating results and other operating metrics have fluctuated in the past and may continue to fluctuate from quarter to quarter, which makes them difficult to predict. Our financial condition and operating results in any given quarter can be influenced by numerous factors, many of which we are unable to predict or are outside of our control, including, for example:

- the timing, size and effectiveness of our marketing efforts;
- the timing and success of new product, service and feature introductions by us or our competitors or any other change in the competitive landscape of our market;
- fluctuations in the rate at which we attract new users, the level of engagement of such users and the propensity of such users to subscribe to our brands or to purchase à la carte features;
- successful expansion into international markets;
- errors in our forecasting of the demand for our products and services, which could lead to lower revenue or increased costs, or both;
- increases in sales and marketing, product development or other operating expenses that we may incur to grow and expand our operations and to remain competitive;
- the diversification and growth of our revenue sources;

- our ability to maintain gross margins and operating margins;
- fluctuations in currency exchange rates and changes in the proportion of our expenses denominated in foreign currencies;
- changes in our effective tax rate;
- changes in accounting standards, policies, guidance, interpretations, or principles;
- our development and improvement of the quality of the Duolingo language app and Duolingo English Test, other Duolingo experiences, including, enhancing existing and creating new products, services, technology and features;
- the continued development and upgrading of our technology platform;
- system failures or breaches of security or privacy;
- our ability to obtain, maintain, protect and enforce intellectual property rights and successfully defend against claims of infringement, misappropriation or other violations of third-party intellectual property;
- adverse litigation judgments, settlements, or other litigation-related costs;
- changes in the legislative or regulatory environment, including with respect to privacy, intellectual property, consumer product safety, and advertising, or enforcement by government regulators, including fines, orders, or consent decrees; and
- changes in business or macroeconomic conditions, including the impact of the current COVID-19 outbreak, lower consumer confidence in our business or in the online learning industry generally, recessionary conditions, increased inflation, increased unemployment rates, stagnant or declining wages, political unrest, armed conflicts, or natural disasters.

Any one of the factors above or the cumulative effect of some of the factors above may result in significant fluctuations in our results of operations.

The variability and unpredictability of our quarterly operating results or other operating metrics could result in our failure to meet our expectations or those of analysts that cover us or investors with respect to revenue or other operating results for a particular period. If we fail to meet or exceed such expectations, the market price of our Class A common stock could fall substantially, and we could face costly lawsuits, including securities class action suits.

Our user metrics and other estimates are subject to inherent challenges in measurement, and real or perceived inaccuracies in those metrics may negatively affect our reputation and our business.

We track certain key operational metrics and non-GAAP financial measures, including MAUs, DAUs, paid subscribers, subscription bookings, total bookings, Adjusted EBITDA and free cash flow, to evaluate growth trends, measure our performance, and make strategic decisions. Our user metrics are calculated using internal company data gathered on an analytics platform that we developed and operate, have not been validated by an independent third party and may differ from estimates or similar metrics published by third parties due to differences in sources, methodologies, or the assumptions on which we rely. Our user metrics are also affected by technology on certain mobile devices that automatically runs in the background of our application when another phone function is used, and this activity can cause our system to miscount the user metrics associated with such an account. We continually seek to improve the accuracy of and our ability to track such data, but given the complexity of the systems involved and the rapidly changing nature of mobile devices and systems, we expect to continue to encounter challenges, particularly if we continue to expand in parts of the world where mobile data systems and connections are

less stable. In addition, we may improve or change our methodologies for tracking these metrics over time, which could result in unexpected changes to our metrics, including the metrics we publicly disclose. As a result, while any future periods may benefit from such improvement or change, prior periods may not be as accurate or comparable, or we may need to adjust such prior periods. The methodologies used to measure these metrics require significant judgment and are also susceptible to algorithm or other technical errors. In addition, our methodologies for tracking these metrics may change over time, which could result in unexpected changes to our metrics, including the metrics we publicly disclose. If the internal systems and tools we use to track these metrics undercount or overcount performance or contain algorithmic or other technical errors, the data we report may not be accurate. While these numbers are based on what we believe to be reasonable estimates of our metrics for the applicable period of measurement, there are inherent challenges in measuring how our products are used across large populations globally.

Errors or inaccuracies in our metrics or data could also result in incorrect business decisions and inefficiencies. For instance, if a significant understatement or overstatement of active users were to occur, we may expend resources to implement unnecessary business measures or fail to take required actions to attract a sufficient number of users to satisfy our growth strategies. We continually seek to address technical issues in our ability to record such data and improve our accuracy, but given the complexity of the systems involved and the rapidly changing nature of mobile devices and systems, we expect these issues to continue, particularly if we continue to expand in parts of the world where mobile data systems and connections are less stable. If our operational metrics are not accurate representations of our business, or if investors do not perceive these metrics to be accurate, or if we discover material inaccuracies with respect to these figures, our reputation may be significantly harmed, our stock price could decline, we may be subject to stockholder litigation, and our business, results of operations, and financial condition could be materially adversely affected.

We rely on third-party platforms such as the Apple App Store and the Google Play Store to distribute our products and collect revenue. If we are unable to maintain a good relationship with such platform providers, if their terms and conditions or pricing changes to our detriment, if we violate, or if a platform provider believes that we have violated, the terms and conditions of its platform, or if any of these platforms loses market share or falls out of favor or is unavailable for a prolonged period of time, our business will suffer.

Our products depend on mobile app stores and other third parties such as data center service providers, as well as third party payment aggregators, computer systems, internet transit providers and other communications systems and service providers. Our mobile applications are almost exclusively accessed through and depend on the Apple App Store and the Google Play Store. While our mobile applications are generally free to download from these stores, we offer our users the opportunity to purchase subscriptions and certain à la carte features through these applications. We determine the prices at which these subscriptions and features are sold. Purchases of these subscriptions and features via our mobile applications are mainly processed through the in-app payment systems provided by Apple and Google. As of December 31, 2021 we paid Apple and Google, as applicable, a meaningful share (generally 15-30%) of the revenue we receive from transactions processed through in-app payment systems. In 2021, we derived 50% of our revenue and 53% of our total bookings from the Apple App Store, and 20% of our revenue and 21% of our total bookings from the Google Play Store. The timing of their payments also may change, which may negatively impact our cash receipts and working capital. While we do not anticipate any interruption in their distribution platforms or ability to accept customer payments, any such disruptions, even temporary, may have material impacts on our business and operations.

We are subject to the standard policies and terms of service of third-party platforms, which govern the promotion, distribution, content and operation generally of apps on the platform. Each platform provider

has broad discretion to make changes to its operating systems or payment services or change the manner in which their mobile operating systems function and to change and interpret its terms of service and other policies with respect to us and other developers, and those changes may be unfavorable to us. For example, such changes could limit, eliminate or otherwise interfere with our products, our ability to distribute our applications through their stores, our ability to update our applications, including to make bug fixes or other feature updates or upgrades, the features we provide, the manner in which we market our in-app products, our ability to access native functionality or other aspects of mobile devices, and our ability to access information about our users that they collect. In addition, our distribution agreements with Apple and Google are generally terminable by Apple or Google without cause with 30 days prior written notice (to the extent allowed by applicable local law). Apple and Google may also terminate our agreements with them immediately (unless a longer period is required by applicable law) under certain circumstances, including upon our uncured breach of such agreements. To the extent Apple, Google or other third party platform providers on which we rely make such changes or terminate our agreements with them, our business, financial condition and results of operations could be materially adversely affected.

A platform provider may also change its fee structure, add fees associated with access to and use of its platform, alter how we are able to advertise on the platform, change how the personal information of its users is made available to application developers on the platform, limit the use of personal information for advertising purposes, or restrict how users can share information with their friends on the platform or across platforms. For example, in December 2017, Apple revised its App Store Guidelines to require the disclosure of the odds of receiving certain types of virtual items from “loot boxes” (or similar mechanisms that offer a paid license to randomized virtual items) before customers purchase a license for the virtual items, and in May 2019 Google revised its Play Store policies to require similar disclosures. As another example, in April 2021 Apple released an update of iOS that requires its users, on an app-by-app basis, to explicitly opt-in to the use of identifier-for-advertising, a device identifier assigned by Apple to each of its devices and used by advertisers to attribute app installs to advertising campaigns, target users through user acquisition, and deliver targeted ads. This led to a reduction in the use of identifiers, and a more challenging environment for publishers and advertisers on iOS devices.

If we violate, or a platform provider believes we have violated, its terms of service (or if there is any change or deterioration in our relationship with these platform providers), that platform provider could limit or discontinue our access to the platform. A platform provider could also limit or discontinue our access to the platform if it establishes more favorable relationships with one or more of our competitors or it determines that we are a competitor. Any limit or discontinuation of our access to any platform could significantly reduce our ability to distribute our products to users, decrease the size of the user base we could convert into paying users, or decrease the revenues we derive from paying users or advertisers, each of which would materially and adversely affect our business, financial condition and results of operations.

We also rely on the continued popularity, customer adoption, and functionality of third-party platforms. In the past, some of these platform providers have been unavailable for short periods of time or experienced issues with their in-app purchasing functionality. If either of these events recurs on a prolonged, or even short-term, basis or other similar issues arise that impact users' ability to access our app or access social features, our business, financial condition, results of operations or reputation may be harmed.

We rely on third-party hosting and cloud computing providers, like Amazon Web Services (“AWS”) and Google Cloud, to operate certain aspects of our business. A significant portion of our product traffic is hosted by a limited number of vendors, and any failure, disruption or

significant interruption in our network or hosting and cloud services could adversely impact our operations and harm our business.

Our technology infrastructure is critical to the performance of our products and to user satisfaction, as well as our corporate functions. Our products and company systems run on a complex distributed system, or what is commonly known as cloud computing. We own, operate and maintain elements of this system, but significant elements of this system are operated by third-parties that we do not control and which would require significant time and expense to replace. We expect this dependence on third-parties to continue. We have suffered interruptions in service in the past, including when releasing new software versions or bug fixes, and if any such interruption were significant and/or prolonged it could adversely affect our business, financial condition, results of operations or reputation.

In particular, a significant portion, if not almost all, of our product traffic, data storage, data processing and other computing services and systems is hosted by AWS and Google Cloud. AWS and Google Cloud provide us with computing and storage capacity pursuant to an agreement that continues until terminated by either party. The agreements require AWS and Google Cloud to provide us their standard computing and storage capacity and related support in exchange for timely payment by us. We have experienced, and may in the future experience, disruptions, outages and other performance problems due to a variety of factors, including infrastructure changes, human or software errors and capacity constraints. If a particular application is unavailable when users attempt to access it or navigation through a product is slower than they expect, users may stop using the application and may be less likely to return to the application as often, if at all.

Any failure, disruption or interference with our use of hosted cloud computing services and systems provided by third-parties, like AWS or Google Cloud, could adversely impact our business, financial condition or results of operations. For example, on December 7, 2021, an outage of the AWS platform caused Duolingo to go offline for over 5 hours. To the extent we do not effectively respond to any such interruptions, upgrade our systems as needed and continually develop our technology and network architecture to accommodate traffic, our business, financial condition or results of operations could be adversely affected. Furthermore, our disaster recovery systems and those of third-parties with which we do business may not function as intended or may fail to adequately protect our critical business information in the event of a significant business interruption, which may cause interruption in service of our products, security breaches or the loss of data or functionality, leading to a negative effect on our business, financial condition or results of operations.

In addition, we depend on the ability of our users to access the internet. Currently, this access is provided by companies that have significant market power in the broadband and internet access marketplace, including incumbent telephone companies, cable companies, mobile communications companies, government-owned service providers, device manufacturers and operating system providers, any of whom could take actions that degrade, disrupt or increase the cost of user access to our products or services, which would, in turn, negatively impact our business. The adoption or repeal of any laws or regulations that adversely affect the growth, popularity or use of the internet, including laws or practices limiting internet neutrality, could decrease the demand for, or the usage of, our products and services, increase our cost of doing business and adversely affect our results of operations.

We derive a portion of our revenues from advertisements. If we are unable to continue to compete for these advertisements, or if any events occur that negatively impact our relationships with advertising networks, our advertising revenues and operating results would be negatively impacted.

We generate advertising revenue from the sale of display and video advertising delivered through advertising impressions. In 2021, approximately 15% of our total revenues were derived from advertising.

We generally enter into arrangements with the major programmatic advertising networks to monetize our advertising inventory. We need to maintain good relationships with these advertising networks to provide us with a sufficient inventory of advertisements. Online advertising, including through mobile applications, is an intensely competitive industry. Many large companies, such as Amazon, Facebook and Google, invest significantly in data analytics to make their websites and platforms more attractive to advertisers. Our advertising revenue is primarily a function of the number and hours of engagement of our free users and our ability to provide innovative advertising products that are relevant to our users, maintain or increase user engagement and satisfaction with our products, and enhance returns for our advertising partners. If our relationship with any advertising partners terminates for any reason, or if the commercial terms of our relationships are changed or do not continue to be renewed on favorable terms, or if we cannot source high-quality ads consistent with our brand or product experience, we would need to qualify new advertising partners, which could negatively impact our revenues, at least in the short term.

In addition, internet-connected devices and operating systems controlled by third parties increasingly contain features that allow device users to disable functionality that allows for the delivery of advertising on their devices or reduce the ability to provide personalized or targeted advertising, which results in less valuable ads. Device and browser manufacturers may include or expand these features as part of their standard device specifications. For example, when Apple announced that UDID, a standard device identifier used in some applications, was being superseded and would no longer be supported, application developers were required to update their apps to utilize alternative device identifiers such as universally unique identifier, or, more recently, identifier-for-advertising, which simplifies the process for Apple users to opt out of behavioral targeting. As of April 2021, Apple has deployed further changes, requiring its users with a version of iOS 14 (and presumably future iOS versions) to opt into the use of identifier-for-advertising on a per app basis. Furthermore, laws and regulations may also make it more difficult to deliver personalized or targeted advertising or impose requirements that result in more users making elections to block our ability to deliver targeted ads. If users do not elect to participate in functionality that supports the delivery of targeted advertising on their devices, our ability to deliver effective advertising campaigns could suffer, which could cause our business, financial condition, or results of operations to suffer. While the described changes did not result in material adverse impacts to us, the impact of similar potential future operating systems changes or potential future regulation on targeted advertising is highly uncertain.

If we are not able to maintain the value and reputation of our brand, our ability to expand our base of users may be impaired, and our business and financial results may be harmed.

We believe that our brand has significantly contributed to our word of mouth virality, which has in turn contributed to the success of our business. We also believe that maintaining, protecting and enhancing our brand is critical to expanding our base of users and, if we fail to do so, our business, financial condition and results of operations could be materially adversely affected. We believe that the importance of brand recognition will continue to increase, given the growing number of language learning applications, or “apps,” and the low barriers to entry for companies offering language learning products and services. Many of our new users are referred by existing users. Maintaining our brand will depend largely on our ability to continue to provide useful, reliable, trustworthy and innovative products, which we may not do successfully.

Further, we may experience media, legislative, or regulatory scrutiny of our actions or decisions regarding user privacy, encryption, content, contributors, advertising and other issues, which may materially adversely affect our reputation and brand. In addition, we may fail to respond expeditiously or appropriately to objectionable content within our app or practices by users, or to otherwise address user concerns, which could erode confidence in our brand. Maintaining and enhancing our brand will require us to make substantial investments and these investments may not be successful.

Our growth and profitability rely, in part, on our ability to attract and keep users through cost-effective marketing efforts, including through our social media presence and use of social media influencers. Any failure in these efforts could materially adversely affect our business, financial condition and results of operations.

We have increased our marketing expenditures over time in order to attract and keep users and sustain our growth. For the years ended December 31, 2021 and 2020, our sales and marketing expenses were \$59.2 million and \$35.0 million, respectively. Evolving consumer behavior can affect the availability of profitable marketing opportunities. For example, as consumers communicate less via email and more via text messaging, messaging apps and other virtual means, the reach of email campaigns designed to attract new and repeat users (and keep current users) for our products is adversely impacted. To continue to reach potential users and grow our businesses, we must identify and devote our overall marketing expenditures to newer advertising channels, such as mobile and online video platforms as well as targeted campaigns in which we communicate directly with potential, former and current users via new virtual means. Generally, the opportunities in and sophistication of newer advertising channels are relatively undeveloped and unproven, and there can be no assurance that we will be able to continue to appropriately manage and fine-tune our marketing efforts in response to these and other trends in the advertising industry. Any failure to do so could materially adversely affect our business, financial condition and results of operations.

We are subject to certain risks as a mission-based company.

We believe that a critical contributor to our success has been our commitment to make free language learning available worldwide in an effort to help people throughout the world improve their economic outcomes. The mission of Duolingo is a significant part of our business strategy and who we are as a company. We believe that Duolingo users value our commitment to our mission. However, because we hold ourselves to such high standards, and because we believe our users have come to have high expectations of us, we may be more severely affected by negative reports or publicity if we fail, or are perceived to have failed, to live up to Duolingo's mission. For example, maintaining a free version of the app that is both effective and enjoyable is central to Duolingo's mission. As a result, our brand and reputation may be negatively affected by actions we take that are viewed as contrary to that mission, such as features that are only available to Plus subscribers or changes to the free offering that are viewed as undermining how fun or effective the free offering is. In these or other circumstances, the damage to our reputation may be greater than to other companies that do not share similar values with us, and it may take us longer to recover from such an incident and gain back the trust of our users.

We may make decisions regarding our business and products in accordance with Duolingo's mission and values that may reduce our short- or medium-term operating results if we believe those decisions are consistent with the mission and will improve the aggregate user experience. Although we expect that our commitment to Duolingo's mission will, accordingly, improve our financial performance over the long term, these decisions may not be consistent with the expectations of investors and any longer-term benefits may not materialize within the time frame we expect or at all, which could harm our business, revenue and financial results.

Unfavorable media coverage could materially adversely affect our business, brand image or reputation.

Unfavorable publicity or media reports regarding us, our privacy practices, data security compromises or breaches, product changes, product or service quality or features, litigation or regulatory activity or regarding the actions of our partners, our users, our employees or other companies in our industry, could materially adversely affect our brand image or reputation, regardless of the veracity of such publicity or media reports. If we fail to protect our brand image or reputation, we may experience material adverse

effects to the size, demographics, engagement, and loyalty of our user base, resulting in decreased revenue, fewer app installs (or increased app uninstalls), or slower user growth rates. Damage to our brand or reputation could also adversely affect educational institutions' willingness to accept the Duolingo English Test, which in turn could slow the growth of, or reduce, our revenue from the Duolingo English Test. In addition, if securities analysts or investors perceive any media coverage of us to be negative, the price of our Class A common stock may be materially adversely affected. Any of the foregoing could materially adversely affect our business, financial condition and results of operations.

Our future success depends on the continuing efforts of our key employees and our ability to attract and retain highly skilled personnel and senior management.

We currently depend on the continued services and performance of our key personnel, including Luis von Ahn and Severin Hacker. If one or more of our executive officers or key employees were unable or unwilling to continue their employment with us, we might not be able to replace them easily, in a timely manner, or at all. The risk that competitors or other companies may poach our talent increases as we continue to build our brands and become more well-known. Our key personnel have been, and may continue to be, subject to poaching efforts by our competitors and other internet and high-growth companies, including well-capitalized players in the social media and consumer internet space. The loss of key personnel, including members of management as well as key engineering, product development, design and marketing personnel, could disrupt our operations and have a material adverse effect on our business. The success of our brand also depends on the commitment of our key personnel to our mission. To the extent that any of our key personnel act in a way that does not align with our mission, our reputation could be materially adversely affected. See “—Our employees, consultants and third party providers could engage in misconduct that materially adversely affects us.”

Our future success will depend upon our continued ability to identify, hire, develop, motivate, and retain highly skilled individuals across the globe, with the continued contributions of our senior management being especially critical to our success. Competition for well-qualified, highly skilled employees in our industry is intense and our continued ability to compete effectively depends, in part, upon our ability to attract and retain new employees. While we have established programs to attract new employees and provide incentives to retain existing employees, particularly our senior management, we cannot guarantee that we will be able to attract new employees or retain the services of our senior management or any other key employees in the future. Additionally, we believe that our culture and core values have been, and will continue to be, a key contributor to our success and our ability to foster the innovation, creativity and teamwork we believe we need to support our operations. If we fail to effectively manage our hiring needs and successfully integrate our new hires, or if we fail to effectively manage remote work arrangements resulting from the COVID-19 pandemic, our efficiency and ability to meet our forecasts and our ability to maintain our culture, employee morale, productivity and retention could suffer, and our business, financial condition and results of operations could be materially adversely affected.

Finally, effective succession planning is also important to our future success. If we fail to ensure the effective transfer of senior management knowledge and smooth transitions involving senior management across our various businesses, our ability to execute short and long term strategic, financial and operating goals, as well as our business, financial condition, and results of operations generally, could be materially adversely affected.

Our employees, consultants and third party providers could engage in misconduct that materially adversely affects us.

Our employees, consultants and third party providers could engage in misconduct that materially and adversely affects us. Misconduct by these parties could include intentional failures to comply with the applicable laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. These laws and regulations may restrict or prohibit a

wide range of pricing, discounting and other business arrangements. Such misconduct could result in legal or regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter misconduct by these parties, and any other precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses, or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could result in the imposition of significant civil, criminal and administrative penalties, which could have a significant impact on our business. Whether or not we are successful in defending against such actions or investigations, if any of our employees, consultants or third party providers were to engage in or be accused of misconduct, we could be exposed to legal liability, incur substantial costs, our business and reputation could be materially adversely affected, and we could fail to retain key employees. See “—Unfavorable media coverage could materially adversely affect our business, brand image or reputation..”

If the recognition by schools and other educational organizations of the value of technology-based assessment does not continue to grow, or if schools and other organizations reduce their reliance on assessment in general, our ability to generate revenue from our assessment, including our Duolingo English Test, could be impaired.

The success of the Duolingo English Test depends in part upon the continued recognition and acceptance by schools and other educational organizations of technology-based assessment and upon the continued utilization of assessment in general. As a result of the COVID-19 pandemic, in 2020, a number of universities waived standardized test requirements for admissions requirements and some universities plan to phase out requirements for standardized testing altogether. In addition, some have questioned the validity of language assessments taken online. If schools and other educational organizations reduce their reliance, or altogether cease to use standardized testing as part of admissions processes or otherwise, or reduce or eliminate reliance on standardized testing, it would have a material adverse effect on our Duolingo English Test business, which could adversely affect our revenues and results of operations.

We operate in various international markets, including certain markets in which we have limited experience. As a result, we face additional risks in connection with certain of our international operations.

Both our language learning application and the Duolingo English Test are available all over the world. Operating internationally, particularly in countries in which we have limited experience, exposes us to a number of additional risks, including:

- operational and compliance challenges caused by distance, language and cultural differences;
- the cost and resources required to localize our platform and services, which often requires the translation of our platform into foreign languages and adaptation for local practices and regulatory requirements;
- difficulties in staffing and managing international operations;
- differing levels of social and technological acceptance of our products or lack of acceptance of them generally;
- foreign currency fluctuations, and in particular, decreases in the value of foreign currencies relative to the US dollar;
- restrictions on the transfer of funds among countries and back to the United States, as well as costs associated with repatriating funds to the United States;

- differing and potentially adverse tax laws, including resulting from the complexities of foreign corporate income tax systems, value added tax (“VAT”) regimes, tax withholding rules, and other indirect taxes, tax collection or remittance obligations, and restrictions on the repatriation of earnings;
- multiple, conflicting and changing laws, rules and regulations, and difficulties understanding and ensuring compliance with those laws, rules and regulations by both our employees and our users, over whom we exert no control;
- compliance challenges due to different laws and regulatory environments, particularly in the case of privacy, data security, and content, which are complex, sometimes inconsistent, and subject to unexpected changes;
- competitive environments that favor local businesses;
- reduced or varied protection for our intellectual property rights in some countries;
- low usage and/or penetration of internet-connected consumer electronic devices;
- political tension or social unrest and economic instability, particularly in countries in which we operate;
- trade sanctions, political unrest, terrorism, war, health and safety epidemics (such as the COVID-19 pandemic) or the threat of any of these events; and
- breaches or violation of any anti-corruption laws, rules or regulations applicable to our business, including but not limited to the Foreign Corrupt Practices Act of 1977, as amended.

Moreover, geopolitical tensions or regulatory uncertainty in countries in which we operate, such as China, may prevent us from operating in certain countries or increase our costs of operating in those countries. Additionally, if enforcement authorities demand access to our user data or require that we obtain hard to obtain local licenses, our failure to comply with those demands or obtain those licenses could lead to our inability to operate in such countries or other punitive acts.

In addition to the factors listed above, we have invested to expand our operations in China, which is an intensely competitive market, both on the consumer side and from a talent perspective. We expect to continue to incur significant expenses to operate our business in China, and we may not achieve profitability in that market. As we expand our operations in China, the above factors, sentiment of the workforce in China, and China’s policy towards foreign direct investment and for profit educational technology companies may particularly impact our operations in China. Further, as we expand our operations in China, we expect to continue to make modifications to the way our website, mobile apps, offerings, and features function in China as compared to other countries. In addition, we need to ensure that our business practices in China are compliant with local laws and regulations, which may be interpreted and enforced in ways that are different from our interpretation, and/or create obligations on us that are costly to meet or conflict with laws in other jurisdictions. For instance, in the fall of 2021 our language learning application became unavailable for download on most app stores in China. While we believe this is temporary and we are in discussions with authorities that we believe will result in us being restored to such app stores, it serves as an example of how the Chinese regulatory regime could adversely impact our efforts in China. Our office of approximately 24 employees in Beijing makes it easier for the Chinese authorities to bring enforcement actions against us.

The occurrence or impact of any or all of the events described above could materially adversely affect our international operations, which could in turn materially adversely affect our business, financial condition and results of operations.

Our business and results of operations may be materially adversely affected by the recent COVID-19 pandemic or other similar outbreaks.

Our business could be materially adversely affected by the outbreak of a widespread health epidemic or pandemic, including the COVID-19 pandemic. The COVID-19 pandemic has reached across the globe, resulting in the implementation of significant governmental measures, including lockdowns, closures, quarantines, and travel bans intended to control the spread of the virus. While many of these measures are not currently in effect, ongoing social distancing measures, and future prevention and mitigation measures, as well as the potential for some of these measures to be reinstated in the event of repeat waves of the virus, are likely to have an adverse impact on global economic conditions and consumer confidence and spending, and could materially adversely affect demand, or users' ability to pay, for our products and services.

A public health epidemic or pandemic, including the COVID-19 pandemic, poses the risk that Duolingo or its employees, contractors, vendors, and other business partners may be prevented or impaired from conducting ordinary course business activities for an indefinite period of time, including due to shutdowns necessitated for the health and well-being of our employees, the employees of business partners, or shutdowns that may be requested or mandated by governmental authorities. In addition, in response to the COVID-19 outbreak, we have taken several precautions that may adversely impact employee productivity, such as requiring employees to work remotely, imposing travel restrictions, and temporarily closing office locations.

A widespread epidemic, pandemic or other health crisis could also cause significant volatility in global markets. The COVID-19 outbreak has caused disruption in financial markets, which if it continues or intensifies, could reduce our ability to access capital and thereby negatively impact our liquidity.

Furthermore health crises such as COVID-19 may disrupt or alter behaviors of large numbers of users or potential users due to either mandated stay at home orders or the lifting of such orders or non-mandated changes in consumer behavior. The impact of such changes are very hard to predict and could either serve to accelerate, slow down or just make less predictable user growth and behavior, all of which could negatively impact our operating results and our ability to predict them.

We intend to continue to execute on our strategic plans and operational initiatives during the COVID-19 outbreak; however, the aforementioned uncertainties may result in delays or modifications to these plans and initiatives. Part of our growth strategy includes increasing the number of international users and expanding into additional geographies. The timing and success of our international expansion may be negatively impacted by COVID-19, which could impede our anticipated growth.

The ultimate extent of the impact of any epidemic, pandemic, or other health crisis on our business will depend on multiple factors that are highly uncertain and cannot be predicted, including its severity, location and duration, and actions taken to contain or prevent further its spread. Additionally, the COVID-19 outbreak could increase the magnitude of many of the other risks described in this Annual Report on Form 10-K, and may have other material adverse effects on our operations that we are not currently able to predict. If our business and the markets in which we operate experience a prolonged occurrence of adverse public health conditions, such as COVID-19, it could materially adversely affect our business, financial condition, and results of operations.

An economic downturn or economic uncertainty may adversely affect consumer discretionary spending and demand for our products and services.

Our products and services may be considered discretionary items for consumers. Factors affecting the level of consumer spending for such discretionary items include general economic conditions, and other

factors, such as consumer confidence in future economic conditions, fears of recession, inflation, the availability and cost of consumer credit, levels of unemployment, and tax rates. In recent years, the United States and other significant economic markets have experienced cyclical downturns and worldwide economic conditions remain uncertain. As global economic conditions continue to be volatile or economic uncertainty remains, including due to the COVID-19 outbreak, trends in consumer discretionary spending also remain unpredictable and subject to reductions. To date, our business has operated almost exclusively in a relatively strong economic environment and, therefore, we cannot be sure the extent to which we may be affected by recessionary conditions. Unfavorable economic conditions may lead consumers to delay or reduce purchases of our products and consumer demand for our products may not grow as we expect. Our sensitivity to economic cycles and any related fluctuation in consumer demand for our products and services could materially adversely affect our business, financial condition, and results of operations. In addition, political instability or adverse political developments, could harm our business, financial condition and results of operations.

Security breaches of our networks, systems or applications, improper unauthorized access to or disclosure of our proprietary data or user-related data, including personal data, other hacking and phishing attacks on our systems or service, or other cyber incidents could disrupt our services or compromise sensitive information related to our business and/or personal data processed by us or on our behalf and expose us to liability, which could harm our reputation and materially adversely affect our business.

Our products and services and the operation of our business involve the collection, storage, processing, and transmission of data, including personal data. The information systems that store and process such data are susceptible to increasing threats of continually evolving cybersecurity risks. In particular, our industry is prone to cyber-attacks by third parties seeking unauthorized access to confidential or sensitive data, including user personal data, or to disrupt our ability to provide services. We face an ever-increasing number of threats to our information systems from a broad range of threat actors, including foreign governments, criminals, competitors, computer hackers, cyber terrorists and politically motivated groups or individuals, and we have previously experienced various attempts to access our information systems. These threats include physical or electronic break-ins, security breaches from inadvertent or intentional actions by our employees, contractors, consultants, and/or other third parties with otherwise legitimate access to our systems, website or facilities, or from cyber-attacks by malicious third parties which could breach our data security and disrupt our systems. The motivations of such actors may vary, but breaches that compromise our information technology systems or the personal data processed on such systems can cause interruptions, delays or operational malfunctions, which in turn could have a material adverse effect on our business, results of operations, financial condition and prospects.

In addition, the risks related to a security breach or disruption, including through ransomware, a distributed denial-of-service (“DDoS”) attack, computer malware, viruses, social engineering (predominantly spear phishing attacks), and general hacking, have become more prevalent in our industry and have generally increased as the number, intensity, and sophistication of attempted attacks and intrusions from around the world have increased.

Such security breaches or disruptions have occurred on our systems in the past and will occur on our systems in the future. We also regularly encounter attempts to create false or undesirable user accounts and ads or take other actions on our platform for objectionable ends. As a result of our prominence, the size of our user base, the volume of personal data on our systems, and the evolving nature of our products and services (including our efforts involving new and emerging technologies), we may be a particularly attractive target for such attacks, including from highly sophisticated, state-sponsored, or otherwise well-funded criminal actors.

Our efforts to address undesirable activity on our platform also increase the risk of retaliatory attacks. Such breaches and attacks on us or our third-party service providers may cause interruptions to the services we provide, degrade the user experience, cause users or marketers to lose confidence and trust in our products and decrease the use of our products or stop using our products in their entirety, impair our internal systems, or result in financial harm to us. Any failure to prevent or mitigate security breaches and unauthorized access to or disclosure of our data or user data, including personal information, content, or payment information from users, or information from marketers, could result in the loss, modification, disclosure, destruction, or other misuse of such data, which could subject us to legal liability and penalties, harm our business and reputation and diminish our competitive position. We may incur significant costs in protecting against or remediating such incidents and as cybersecurity incidents continue to evolve, we may be required to expend significant additional resources to continue to modify or enhance our protective measures or to investigate and remediate any information security vulnerabilities. Our efforts to protect our confidential and sensitive data, the data of our users or other personal information we receive, and to prevent or disable undesirable activities on our platform, may also be unsuccessful due to software bugs or other technical malfunctions; employee, contractor, or vendor error or malfeasance, including defects or vulnerabilities in our service providers' information technology systems or offerings; government surveillance; breaches of physical security of our facilities or technical infrastructure; or other threats that may surface or evolve.

In addition, third parties may attempt to fraudulently induce employees or users to disclose information in order to gain access to our data or our users' data. Cyber-attacks continue to evolve in sophistication and volume, and may be difficult to detect for long periods of time. Although we have developed systems and processes that are designed to protect our data and user data, to prevent data loss, to disable undesirable accounts and activities on our platform, and to prevent or detect security breaches, we cannot assure you that such measures will be successful, that we will be able to anticipate or detect all cyber-attacks or other breaches, that we will be able to react to cyber-attacks or other breaches in a timely manner, or that our remediation efforts will be successful. We may incur significant costs in connection with such remediation efforts, including the costs of notifying applicable regulators and affected users, or offering credit monitoring services. We may also incur significant legal and financial exposure, including legal claims, higher transaction fees and regulatory fines and penalties as a result of any compromise or breach of our systems or data security, or the systems and data security of our third party providers. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, some of our partners may receive or store information provided by us or by our users through mobile or web applications integrated with our applications and we use third-party service providers to store, transmit and otherwise process certain confidential, sensitive or personal information on our behalf. If these third parties fail to adopt or adhere to adequate data security practices, or in the event of a breach of their networks, our data or our users' data may be improperly accessed, used, or disclosed, which could subject us to legal liability. We cannot control such third parties and cannot guarantee that a security breach will not occur on their systems. Although we may have contractual protections with our third-party service providers, contractors and consultants, any actual or perceived security breach could harm our reputation and brand, expose us to potential liability or require us to expend significant resources on data security and in responding to any such actual or perceived breach. Any contractual protections we may have from our third-party service providers, contractors or consultants may not be sufficient to adequately protect us from any such liabilities and losses, and we may be unable to enforce any such contractual protections.

While our insurance policies include liability coverage for certain of these matters, subject to retention amounts that could be substantial, if we experience a significant security incident, we could be subject to liability or other damages that exceed our insurance coverage and we cannot be certain that such

insurance policies will continue to be available to us on economically reasonable terms, or at all, or that any insurer will not deny coverage as to any future claim. The successful assertion of one or more large claims against us that exceed available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our results of operations, financial condition and cash flows.

If the security of personal and confidential or sensitive user information that we maintain and store is breached, or otherwise accessed by unauthorized persons, it may be costly to remediate such breach, subject us to regulatory investigations or private party lawsuits, and our reputation could be harmed.

We receive, process, store, and transmit personal user and other confidential or sensitive information, including credit card information and personal information of our employees and users. In some cases, we engage third-party service providers to process or store this information. We continuously develop and maintain systems to protect the security, integrity and confidentiality of this information, but we have experienced past incidents (which to our knowledge were immaterial) and cannot guarantee that inadvertent or unauthorized use or disclosure of such information will not occur in the future or that third parties will not gain unauthorized access to such information despite our efforts. When such incidents occur, we may not be able to remedy them, we may be required by law to notify regulators and individuals whose personal information was used or disclosed without authorization, we may be subject to claims against us, including government enforcement actions or investigations, fines and litigation, and we may have to expend significant capital and other resources to mitigate the impact of such events, including developing and implementing protections to prevent future events of this nature from occurring. When breaches of our or our third-party service providers' and partners' information technology systems occur or unauthorized access to any of the confidential, sensitive or other personal information we collect or process occurs, the perception of the effectiveness of our security measures, the security measures of our partners and our reputation may be harmed, we may lose current and potential users and the recognition of our various brands and such brands' competitive positions may be diminished, any or all of which might materially adversely affect our business, financial condition and results of operations. See "—The varying and rapidly-evolving regulatory framework on privacy and data protection across jurisdictions could result in claims, changes to our business practices, monetary penalties, increased cost of operations, or declines in user growth or engagement, or otherwise harm our business."

We are subject to a number of risks related to credit card payments, including data security breaches and fraud that we or third parties experience or additional regulation, any of which could materially adversely affect our business, financial condition and results of operations.

In addition to purchases through the Apple App Store and the Google Play Store, we accept payment from our users through credit card transactions, certain online payment service providers, and mobile payment platforms. The ability to access credit card information on a real-time basis without having to proactively reach out to the consumer each time we process an auto-renewal payment or a payment for the purchase of a premium feature on any of our products is critical to our success and a seamless experience for our users.

When we or a third party experiences a data security breach involving credit card information, affected cardholders will often cancel their credit cards. In the case of a breach experienced by a third party, the more sizable the third party's customer base and the greater the number of credit card accounts impacted, the more likely it is that our users would be impacted by such a breach. To the extent our users are ever affected by such a breach experienced by us or a third party, affected users would need to be contacted to obtain new credit card information and process any pending transactions. It is likely that we would not be able to reach all affected users, and even if we could, some users' new credit card

information may not be obtained and some pending transactions may not be processed, which could materially adversely affect our business, financial condition and results of operations.

Our third party payment service providers utilize tokenization tools to replace sensitive cardholder information with a stand-in token to help secure individual cardholder bank account details in credit card transactions and to reduce the number of systems that have access to our customers' credit card information. While these tokenization tools can help limit the data security risks associated with credit card transactions, it does not eliminate those risks altogether.

Even if our users are not directly impacted by a given data security breach, they may lose confidence in the ability of service providers to protect their personal information generally, which could cause them to stop using their credit cards online and choose alternative payment methods that are not as convenient for us or restrict our ability to process payments without significant cost or user effort.

Additionally, if we fail to adequately prevent fraudulent credit card transactions, we may face litigation, fines, governmental enforcement action, civil liability, diminished public perception of our security measures, significantly higher credit card-related costs and substantial remediation costs, or refusal by credit card processors to continue to process payments on our behalf, any of which could materially adversely affect our business, financial condition and results of operations.

Finally, the passage or adoption of any legislation or regulation affecting the ability of service providers to periodically charge consumers for, among other things, recurring subscription payments may materially adversely affect our business, financial condition and results of operations. Legislation or regulation regarding the foregoing, or changes to existing legislation or regulation governing subscription payments, are being considered in many states in the US. While we monitor and attempt to comply with these legal developments, we have been in the past, and may be in the future, subject to claims under such legislation or regulation.

Our success depends, in part, on the integrity of our information technology systems and infrastructures and on our ability to enhance, expand and adapt these systems and infrastructures in a timely and cost-effective manner.

In order for us to succeed, our information technology systems and infrastructures must perform well on a consistent basis. Our products and systems rely on software and hardware that are highly technical and complex, and depend on the ability of such software and hardware to store, retrieve, process and manage immense amounts of data. We have in the past experienced, and we may from time to time in the future experience, system interruptions that make some or all of our systems or data temporarily unavailable and prevent our products from functioning properly for our users; any such interruption could arise for any number of reasons, including software bugs and human errors. Further, our systems and infrastructures are vulnerable to damage from fire, power loss, hardware and operating software errors, cyber-attacks, technical limitations, telecommunications failures, acts of God and similar events. While we have backup systems in place for certain aspects of our operations, not all of our systems and infrastructures are fully redundant. We do not have a formal disaster recovery plan, and system backups do not account for all possible eventualities and our property and business interruption insurance coverage may not be adequate to compensate us fully for any losses that we may suffer. Any interruptions or outages, regardless of the cause, could negatively impact our users' experiences with our products, tarnish our brands' reputations and decrease demand for our products, any or all of which could materially adversely affect our business, financial condition and results of operations. Moreover, even if detected, the resolution of such interruptions may take a long time, during which customers may not be able to access, or may have limited access to, the service. See "— Security breaches, improper access to or disclosure of our data or user data, other hacking and phishing attacks on our systems, or other cyber incidents could compromise sensitive information related to our business and/or personal data processed by us or on our

behalf and expose us to liability, which could harm our reputation and materially adversely affect our business.”

We also continually work to expand and enhance the efficiency and scalability of our technology and network systems to improve the experience of our users, accommodate substantial increases in the volume of traffic to our various products, ensure acceptable load times for our products and keep up with changes in technology and user preferences. Any failure to do so in a timely and cost-effective manner could materially adversely affect our users' experience with our various products and thereby negatively impact the demand for our products, and could increase our costs, either of which could materially adversely affect our business, financial condition and results of operations.

We may experience operational and financial risks in connection with acquisitions.

We may seek potential acquisition candidates to add complementary companies, products or technologies. The identification of suitable acquisition candidates can be difficult, time-consuming and costly, and we may not be able to successfully complete identified acquisitions. We may experience operational and financial risks in connection with historical and future acquisitions if we are unable to:

- properly value prospective acquisitions, especially those with limited operating histories;
- accurately review acquisition candidates' business practices against applicable laws and regulations and, where applicable, implement proper remediation controls, procedures, and policies;
- successfully integrate the operations, as well as the accounting, financial controls, management information, technology, human resources and other administrative systems, of acquired businesses with our existing operations and systems;
- overcome cultural challenges associated with integrating employees from the acquired company into our organization;
- successfully identify and realize potential synergies among acquired and existing businesses;
- fully identify potential risks and liabilities associated with acquired businesses, including intellectual property infringement claims, violations of laws, commercial disputes, tax liabilities, litigation or other claims in connection with the acquired company, including claims from terminated employees, former stockholders or other third parties, and other known and unknown liabilities;
- retain or hire senior management and other key personnel at acquired businesses; and
- successfully manage acquisition-related strain on our management, operations and financial resources and those of the various brands in our portfolio

Furthermore, we may not be successful in addressing other challenges encountered in connection with our acquisitions. The anticipated benefits of one or more of our acquisitions may not be realized or the value of goodwill and other intangible assets acquired could be impacted by one or more continuing unfavorable events or trends, which could result in significant impairment charges. The occurrence of any of these events could have a material adverse effect on our business, financial condition and results of operations.

Additionally, the integration of acquisitions requires significant time and resources, and we may not manage these processes successfully. Our ability to successfully integrate complex acquisitions is unproven, particularly with respect to companies that have significant operations or that develop products with which we do not have prior experience. We may make substantial investments of resources to

support our acquisitions, which would result in significant ongoing operating expenses and may divert resources and management attention from other areas of our business. We cannot assure you that these investments will be successful. If we fail to successfully integrate the companies we acquire, we may not realize the benefits expected from the transactions and our business may be harmed.

Foreign currency exchange rate fluctuations could adversely affect our results of operations.

Our functional currency is the US dollar, our operating expenses are denominated in the currencies of the countries in which our operations are located, which are primarily in the United States and China. Our consolidated results of operations and cash flows are, therefore, subject to fluctuations due to changes in foreign currency exchange rates and may be adversely affected in the future due to changes in foreign exchange rates. In addition, certain of our payment providers translate our payments from local currency into USD at time of settlement, which means that during periods of a strengthening US dollar, our international receipts could be reduced. In addition, as foreign currency exchange rates fluctuate, the translation of our international receipts into US dollars affects the period-over-period comparability of our operating results and can result in foreign currency exchange gains and losses. We have not entered into any hedging arrangements with respect to foreign currency risk or other derivative financial instruments, although we may choose to do so in the future. The use of such hedging activities may not offset any or more than a portion of the adverse financial effects of unfavorable movements in foreign exchange rates and may introduce additional risks if we are unable to structure effective hedges with such instruments.

The estimates of market opportunity and forecasts of market growth included in this Annual Report on Form 10-K may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.

Market opportunity estimates and expectations about market growth included in this Annual Report on Form 10-K are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. Even if the markets in which we compete meet the size estimates and growth expectations included in this Annual Report on Form 10-K, our business could fail to grow for a variety of reasons, which could adversely affect our results of operations.

Risks Related to Legal and Regulatory Compliance

Our business is subject to complex and evolving US and international laws and regulations. Many of these laws and regulations are subject to change and uncertain interpretation, and could result in claims, changes to our business practices, monetary penalties, increased cost of operations, or declines in user growth or engagement, or otherwise harm our business.

We are subject to a variety of laws and regulations in the United States and abroad that involve matters that are important to or may otherwise impact our business, including, among others, broadband internet access, online commerce, advertising, user privacy, data protection, intermediary liability, protection of minors, consumer protection, accessibility, immigration and university admissions, taxation and securities law compliance. The introduction of new products, expansion of our activities in certain jurisdictions, or other actions that we may take may subject us to additional laws, regulations or other government scrutiny. In addition, foreign laws and regulations can impose different obligations or be more restrictive than those in the United States.

These US federal, state, and municipal and foreign laws and regulations, which in some cases can be enforced by private parties in addition to government entities, are constantly evolving and can be subject to significant change.

In addition, the introduction of new brands and products, or changes to our existing brand and products, may result in new or enhanced governmental or regulatory scrutiny. As a result, the application, interpretation, and enforcement of these laws and regulations are often uncertain, particularly in the new and rapidly-evolving industry in which we operate, and may be interpreted and applied inconsistently from state to state and country to country and inconsistently with our current policies and practices. These laws and regulations, as well as any associated inquiries or investigations or any other government actions, may be costly to comply with and may delay or impede the development of new products, require that we change or cease certain business practices, result in negative publicity, increase our operating costs, require significant management time and attention, and subject us to remedies that may harm our business, including fines, demands or orders that require us to modify or cease existing business practices. For example, a variety of laws and regulations govern the ability of users to cancel subscriptions and auto-payment renewals. We have in the past and may in the future be subject to claims under such laws and regulations that could materially adversely affect our business.

The promulgation of new laws or regulations, or the new interpretation of existing laws and regulations, in each case, that restrict or otherwise unfavorably impact our business, or our ability to provide or the manner in which we provide our services, could require us to change certain aspects of our business and operations to ensure compliance, which could decrease demand for services, reduce revenues, increase costs and subject us to additional liabilities.

The adoption of any laws or regulations that adversely affect the popularity or growth in use of the internet or our services, including laws or regulations that undermine open and neutrally administered internet access, could decrease user demand for our service offerings and increase our cost of doing business, any of which could have a material adverse effect on our business, financial condition and results of operations.

Our failure to comply with US and foreign export controls, sanctions and other trade laws and regulations could have a material adverse effect on our business.

We are subject to rules and regulations of the United States and other relevant authorities relating to export controls and economic and trade sanctions, including sanctions administered by the Office of Foreign Assets Control (“OFAC”) within the US Department of the Treasury, as well as the Export Administration Regulations (i.e. export controls) administered by the Department of Commerce. These laws and regulations limit our ability to market, sell, distribute or otherwise transfer our products, software, or technology to, or otherwise transact or deal with, certain countries, territories, governments, and persons, absent US government permissions or exemptions.

Further, we have historically provided services to users in countries that are the target of US sanctions, such as Syria. We believe our provision of such services is in compliance with applicable law, and have implemented various control mechanisms to maintain such compliance. We have also secured a license from OFAC to provide certain of our services to end-users in Syria. There is no assurance that OFAC will agree to extend or renew our license.

While we have taken steps to comply with these rules and regulations, a determination that we have failed to comply, whether knowingly or inadvertently, may result in substantial penalties, including fines, enforcement actions, civil and/or criminal sanctions, the disgorgement of profits, and may materially adversely affect our business, results of operations and financial condition

Our success depends, in part, on our ability to access, collect, and use personal data about our users and payers, and to comply with applicable data privacy laws.

Increased regulation of data utilization practices, including self-regulation, new laws, or findings or guidance under existing laws that limit our ability to collect, disclose, process, transfer, retain and use information and other data, could have a material adverse effect on our business. In addition, if we were to disclose information and other data about our users in a manner that was objectionable to them, our business reputation could be materially adversely affected, and we could face potential legal claims that could impact our operating results. Internationally, we may become subject to additional and/or more stringent legal obligations concerning our treatment of customer and other personal information, such as laws regarding data localization and/or restrictions on data export. For example, in July 2020 the Court of Justice of the European Union (“CJEU”) invalidated the EU-US Privacy Shield Framework (“Privacy Shield”) under which personal data could be transferred from the European Economic Area (“EEA”) and the United Kingdom to entities in the United States who had self-certified under the Privacy Shield scheme. This has led to uncertainty about the adequate transfer mechanisms for other personal data transfers from the EEA and the United Kingdom to the United States or interruption of such transfers. In the event that any court of law orders the suspension of personal data transfers to or from a particular jurisdiction this could give rise to operational interruption in the performance of services for customers, greater costs to implement alternative data transfer mechanisms that are still permitted, regulatory liabilities or reputational harm. Failure to comply with evolving privacy laws could subject us to liability and expose us to fines, penalties and compliance orders, and to the extent that we need to alter our business model or practices to adapt to these obligations, we could incur additional expenses, which may in turn materially adversely affect our business, financial condition, and results of operations. See “—The varying and rapidly-evolving regulatory framework on privacy and data protection across jurisdictions could result in claims, changes to our business practices, monetary penalties, increased cost of operations, or declines in user growth or engagement, or otherwise harm our business.”

Additionally, privacy activist groups have previously and may continue to provide resources to support individuals who wish to pursue privacy claims or put pressure on companies to change data processing practices. High-profile brands such as ours risk being targeted by such groups and there is a risk that if a user became disgruntled with our data processing practices they could leverage support from such privacy activist groups to take legal action, initiate regulatory investigation or gain publicity for their cause. There is a risk that these groups will seek to challenge our practices, particularly in relation to targeted advertising or international data transfers. Any such campaign could require significant resources to mount a response and could lead to negative publicity and potential investigation from regulators, any of which may materially adversely affect our business, financial condition, and results of operations.

The varying and rapidly-evolving regulatory framework on privacy and data protection across jurisdictions could result in claims, changes to our business practices, monetary penalties, increased cost of operations, or declines in user growth or engagement, or otherwise harm our business.

As discussed above, we process personal information, personal data and other regulated information both from our employees and our users. There are numerous laws in the countries in which we operate regarding privacy and the storage, sharing, use, transfer, disclosure, protection and otherwise processing of this kind of information, the scope of which are constantly changing, and in some cases, inconsistent and conflicting and subject to differing interpretations, as new laws of this nature are proposed and adopted and we currently, and from time to time, may not be in technical compliance with all such laws. Such laws also are becoming increasingly rigorous and could be interpreted and applied in ways that may have a material adverse effect on our business, financial condition, results of operations and prospects. Therefore, enforcement practices are likely to remain uncertain for the foreseeable future. In recent years, there has been an increase in attention to and regulations of data protection and data privacy across the globe, including in the United States, the EEA and the United Kingdom. We are subject to various data protection laws, including: the General Data Protection Regulation 2016/679 (GDPR) in the EEA, the

United Kingdom data protection regime consisting primarily of (i) the UK General Data Protection Regulation and (ii) the UK Data Protection Act 2018 (collectively (i) and (ii), the UK GDPR), the Personal Information Protection Law (“PIPL”) in China, the California Consumer Privacy Act (“CCPA”) in the United States, and the Brazilian General Data Protection Law, which imposes requirements similar to the GDPR on products and services offered to users in Brazil. We may be subject to additional privacy regulations in the future, including the Virginia Consumer Data Protection Act (“VCDPA”). Other comprehensive data privacy or data protection laws or regulations have been passed or are under consideration in other jurisdictions, including China, India and Japan. Laws such as these give rise to an increasingly complex set of compliance obligations on us, as well as on many of our service providers. These laws impose restrictions on our ability to gather personal data, provide individuals with the ability to opt out of personal data collection and control how their personal data is processed, impose obligations on our ability to share personal data with others, limit the geographic locations in which we can store personal data, and potentially subject us to fines, lawsuits, and regulatory scrutiny.

For example, the GDPR and the UK GDPR impose strict data protection compliance requirements including: providing detailed disclosures about how personal data is collected and processed (in a concise, intelligible and easily-accessible form); demonstrating that an appropriate legal basis is in place or otherwise exists to justify data processing activities; granting new rights for data subjects in regard to their personal data (including the right to be “forgotten” and the right to data portability), as well as enhancing current rights (e.g., data subject access requests); introducing the obligation to notify data protection regulators or supervisory authorities (and in certain cases, affected individuals) of significant data breaches; defining pseudonymized (i.e., key-coded) data; imposing limitations on retention of personal data; maintaining a record of processing activities; and complying with the principle of accountability and the obligation to demonstrate compliance through policies, procedures, training and audit. The GDPR and the UK GDPR create compliance obligations that are also applicable to entities established outside the EEA/United Kingdom, which offer goods or services to individuals located in the EEA/United Kingdom or which observe the behavior of individuals located in the EEA/United Kingdom. This has created a greater compliance burden for us and other companies with users in the EEA and the United Kingdom, as the legal regimes may subject non-compliant entities to substantial monetary penalties. In particular, fines for the most serious violations under the GDPR and the UK GDPR may amount to the greater of €20 million/ £17.5 million or, in the case of an undertaking, up to 4% of the total worldwide annual group turnover of the preceding financial year. In addition to potential substantial fines, non-compliance could result in regulatory investigations, reputational damage, orders to cease/ change the processing of personal data, enforcement notices, and/ or assessment notices (for a compulsory audit). We may also face civil claims including representative actions and other class action type litigation (where individuals have suffered harm), potentially amounting to significant compensation or damages liabilities, as well as associated costs, diversion of internal resources, and reputational harm.

As noted above, the CJEU invalidated the Privacy Shield on July 16, 2020 and, while it upheld the adequacy of the EU standard contractual clauses (a standard form of contract approved by the European Commission (“SCCs”) as an adequate transfer mechanism for personal data, and potential alternative to the Privacy Shield), it made clear that reliance on them alone may not necessarily be sufficient in all circumstances. Use of the SCCs must be assessed on a case-by-case basis taking into account the legal regime applicable in the destination country, in particular surveillance laws and the rights of individuals and additional measures and/or contractual provisions may need to be adopted, however, the nature of these additional measures is currently uncertain. The CJEU went on to state that, if the competent supervisory authority believes that the SCCs cannot be complied with in the destination country and the required level of protection cannot be secured by other means, such supervisory authority is under an obligation to suspend or prohibit that transfer unless the data exporter has already done so itself. We rely on a mixture of mechanisms to transfer personal data from the EEA and the United Kingdom to the United

States and are evaluating what additional mechanisms may be required to establish adequate safeguards for personal data. As supervisory authorities continue to issue further guidance on personal data export mechanisms, including circumstances where the SCCs cannot be used and/or start taking enforcement action, there will be uncertainty as to how we comply with EEA and United Kingdom privacy laws and we could suffer additional costs, complaints, and/or regulatory investigations or fines. Moreover, if we are otherwise unable to transfer personal data between and among countries and regions in which we operate, it could affect the manner in which we provide our services, and we may find it necessary to establish systems in the EEA and the United Kingdom to maintain personal data originating from the EEA and the United Kingdom, which may involve substantial expense and distraction from other aspects of our business.

We are also subject to evolving privacy laws in the EEA and the United Kingdom on cookies and e-marketing. Regulators are increasingly focusing on compliance with requirements in the online behavioral advertising ecosystem, and current national laws that implement the ePrivacy Directive are highly likely to be replaced by an EU regulation known as the ePrivacy Regulation which will significantly increase fines for non-compliance. In the EEA and the United Kingdom, informed consent is required for the placement of non-strictly necessary cookies or similar technologies on users' devices and for direct electronic marketing. The GDPR and the UK GDPR also impose conditions on obtaining valid consent, such as a prohibition on pre-checked consents and a requirement to ensure separate consents are sought for each type of non-strictly necessary cookie or similar technology. While the text of the ePrivacy Regulation is still under development, recent European court decisions and regulators' guidance are driving increased attention to cookies and tracking technologies. If regulators start to enforce the strict approach in recent guidance, this could lead to substantial costs, require significant systems changes, limit the effectiveness of our marketing activities, divert the attention of our technology personnel, adversely affect our margins, increase costs and subject us to additional liabilities. Regulation of cookies and similar technologies, and any decline of cookies or similar online tracking technologies as a means to identify and potentially target users as well as personalize the consumer experience, may lead to broader restrictions and impairments on our marketing and personalization activities and may negatively impact our efforts to understand and tailor our offerings to users.

Brexit (as defined below) and ongoing developments in the United Kingdom have created additional uncertainty as the United Kingdom may become a "third country" for the purposes of personal data transfers from the EEA to the United Kingdom following the expiration of the four to six-month personal data transfer grace period (from January 1, 2021) set out in the EU and United Kingdom Trade and Cooperation Agreement, unless a relevant adequacy decision is adopted in favor of the United Kingdom (which would allow data transfers without additional measures). These changes may require us to find alternative solutions for the compliant transfer of personal data into the United Kingdom. Additionally, following Brexit, we may be exposed to two parallel enforcement regimes, each of which authorize similar fines and other enforcement actions for certain violations.

We depend on a number of third parties in relation to the operation of our business, a number of which process personal data on our behalf. With each such provider we attempt to mitigate the associated risks of using third parties by performing security assessments and detailed due diligence, entering into contractual arrangements to ensure that providers only process personal data according to our instructions, and that they have sufficient technical and organizational security measures in place. Where we transfer personal data outside the EEA or the United Kingdom to such third parties, we do so while considering the relevant data export requirements, as described above. There is no assurance that these contractual measures and our own privacy and security-related safeguards will protect us from the risks associated with the third-party processing, storage and transmission of such information. Any violation of data or security laws by our third party processors could have a material adverse effect on our business and result in the fines and penalties outlined above.

The GDPR and the UK GDPR will continue to be interpreted by data protection regulators in the EEA and the United Kingdom. This may require us to make changes to our business practices, which could be time-consuming and expensive, and could generate additional risks and liabilities. Other countries have also passed or are considering passing laws requiring local data residency and/or restricting the international transfer of data.

Multiple legislative proposals concerning privacy and the protection of user information are being considered by the US Congress. Various US state legislatures have announced intentions to consider additional privacy legislation, and US state legislatures such as California and Virginia have already passed and enacted comprehensive privacy legislation. For example, among other cases, the CCPA requires covered companies to provide new disclosures to California consumers and provide such consumers certain data protection and privacy rights, including the ability to opt-out of certain sales of personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches. This private right of action may increase the likelihood of, and risks associated with, data breach litigation. A ballot initiative from privacy rights advocates intended to augment and expand the CCPA called the California Privacy Rights Act (“CPRA”) was passed in November 2020 and will take effect in January 2023 (with a look back to January 2022). The CPRA will significantly modify the CCPA, including by expanding consumers’ rights with respect to certain sensitive personal information. The CPRA also creates a new state agency that will be vested with authority to implement and enforce the CCPA and the CPRA. The VCDPA, which will go into effect in 2023, gives new data protection rights to Virginia residents and imposes additional obligations on controllers and processors of personal data. For example, like the CCPA, the VCDPA grants Virginia residents certain rights to access personal data that is being processed by the controller, the right to correct inaccuracies in that personal data and the right to require that their personal data be deleted by the data controller. In addition, Virginia residents will have the right to request a copy of their personal data in a format that permits them to transmit it to another data controller. Further, under the VCDPA, Virginia residents will have the right to opt out of the sale of their personal data, as well as the right to opt out of the processing of their personal data for targeted advertising. New legislation proposed or enacted in a number of states impose, or have the potential to impose additional obligations on companies that collect, store, use, retain, disclose, transfer and otherwise process confidential, sensitive and personal information, and will continue to shape the data privacy environment nationally. State laws are changing rapidly and there is discussion in Congress of a new federal data protection and privacy law to which we would become subject if it is enacted. Additionally, governmental agencies like the Consumer Financial Protection Bureau and the Federal Trade Commission have adopted, or are considering adopting, laws and regulations concerning personal information and data security. For example, the Federal Trade Commission has increased its focus on privacy and data security practices at digital companies, as evidenced by obtaining increasing fines against companies found to be in violation of the Children’s Online Privacy Protection Act (“COPPA”), and obtaining twenty-year consent decrees mandating enhanced and specific requirements for information security management programs. While the FTC does not have legal authority to seek monetary penalties or relief in the area of data security as a general matter, a violation of a privacy or data security consent decree can subject the responding company to very high monetary penalties, as evidenced by the FTC obtaining \$5 billion in negotiated monetary relief against Facebook for violation of a consent decree.

The myriad international and US privacy and data breach laws are not consistent, and compliance in the event of a widespread data breach is difficult and may be costly. In addition to government regulation, privacy advocates and industry groups have and may in the future propose self-regulatory standards from time to time. These and other industry standards may legally or contractually apply to us, or we may elect to comply with such standards. We expect that there will continue to be new proposed laws and regulations concerning data privacy and security, and we cannot yet determine the impact such future

laws, regulations and standards may have on our business. Because the interpretation and application of data protection laws, regulations, standards and other obligations are still uncertain, and may be contradictory and in flux, it is possible that the scope and requirements of these laws may be interpreted and applied in a manner that is inconsistent with our practices and our efforts to comply with the evolving data protection rules may be unsuccessful.

We make public statements about our use and disclosure of personal information through our privacy policy, information provided on our website and press statements. Although we endeavor to ensure that our public statements are complete, accurate and fully implemented, we may at times fail to do so or be alleged to have failed to do so. We may be subject to potential regulatory or other legal action if such policies or statements are found to be deceptive, unfair or misrepresentative of our actual practices. In addition, from time to time, concerns may be expressed about whether our products and services compromise the privacy of our users and others. Any concerns about our data privacy and security practices (even if unfounded), or any failure, real or perceived, by us to comply with our posted privacy policies or with any legal or regulatory requirements, standards, certifications or orders or other privacy or consumer protection-related laws and regulations applicable to us, could cause our users to reduce their use of our products and services.

While we aim to comply with industry standards and applicable laws and industry codes of conduct relating to privacy and data protection in all material respects, there is no assurance that we will not be subject to claims that we have violated applicable laws or codes of conduct, that we will be able to successfully defend against such claims or that we will not be subject to significant fines and penalties in the event of non-compliance. Additionally, to the extent multiple state-level laws are introduced with inconsistent or conflicting standards and there is no federal law to preempt such laws, compliance with such laws could be difficult and costly to achieve and we could be subject to fines and penalties in the event of non-compliance.

Furthermore, enforcement actions and investigations by regulatory authorities related to data security incidents and privacy violations continue to increase. We have in the past received, and may continue to receive inquiries from regulators regarding our data privacy practices. Any failure or perceived failure by us (or the third parties with whom we have contracted to process such information) to comply with applicable privacy and security laws, policies or related contractual obligations, or any compromise of security that results in unauthorized access, use or transmission of, personal user information, could result in a variety of claims against us, including governmental enforcement actions and investigations, class action privacy litigation in certain jurisdictions and proceedings by data protection authorities. We could further be subject to significant fines, other litigation, claims of breach of contract and indemnity by third parties, and adverse publicity. When such events occur, our reputation may be harmed, we may lose current and potential users and the competitive positions of our various brands might be diminished, any or all of which could materially adversely affect our business, financial condition, results of operations and prospects. In addition, if our practices are not consistent or viewed as not consistent with legal and regulatory requirements, including changes in laws, regulations and standards or new interpretations or applications of existing laws, regulations and standards, we may become subject to audits, inquiries, whistleblower complaints, adverse media coverage, investigations, loss of export privileges or severe criminal or civil sanctions, all of which may have a material adverse effect on our business, financial condition, results of operations and prospects.

Online applications are subject to various laws and regulations relating to children’s privacy and protection, which if violated, could subject us to an increased risk of litigation and regulatory actions.

A variety of laws and regulations have been adopted in recent years aimed at protecting children using the internet such as the COPPA and Article 8 of the GDPR and the UK GDPR. We implement certain precautions to ensure that we comply. Despite our efforts, no assurances can be given that such measures will be sufficient to completely avoid allegations of COPPA violations, any of which could expose us to significant liability, penalties, reputational harm and loss of revenue, among other things. Additionally, new regulations are being considered in various jurisdictions to require the monitoring of user content or the verification of users’ identities and age. Such new regulations, or changes to existing regulations, could increase the cost of our operations.

We are subject to litigation and adverse outcomes in such litigation could have a material adverse effect on our business, financial condition and results of operations.

We are, and from time to time may become, subject to litigation and various legal proceedings, including litigation and proceedings related to intellectual property matters, privacy and consumer protection laws, as well as stockholder derivative suits, class action lawsuits, actions from former employees and other matters, that involve claims for substantial amounts of money or for other relief or that might necessitate changes to our business or operations. The defense of these actions could be time consuming and expensive and could distract our personnel from their normal responsibilities. We evaluate these litigation claims and legal proceedings to assess the likelihood of unfavorable outcomes and to estimate, if possible, the amount of potential losses. Based on these assessments and estimates, we may establish reserves or disclose the relevant litigation claims or legal proceedings, as and when required or appropriate. These assessments and estimates are based on information available to management at the time of such assessment or estimation and involve a significant amount of judgment. As a result, actual outcomes or losses could differ materially from those envisioned by our current assessments and estimates. Our failure to successfully defend or settle any of these litigations or legal proceedings could result in liability that, to the extent not covered by our insurance, could have a material adverse effect on our business, financial condition and results of operations. See Part I, Item 3. Legal Proceedings.

We are subject to taxation related risks in multiple jurisdictions.

We are a US-based multinational company subject to tax in multiple US and foreign tax jurisdictions. Significant judgment is required in determining our global provision for income taxes, deferred tax assets or liabilities and in evaluating our tax positions on a worldwide basis. While we believe our tax positions are consistent with the tax laws in the jurisdictions in which we conduct our business, it is possible that these positions may be challenged by jurisdictional tax authorities, which may have a significant impact on our global provision for income taxes.

Tax laws are being re-examined and evaluated globally. New laws and interpretations of the law are taken into account for financial statement purposes in the quarter or year that they become applicable. Tax authorities are increasingly scrutinizing the tax positions of companies. Many countries in the European Union, as well as a number of other countries and organizations such as the Organization for Economic Cooperation and Development and the European Commission, are actively considering changes to existing tax laws that, if enacted, could increase our tax obligations in countries where we do business. These proposals include changes to the existing framework to calculate income tax, as well as proposals to change or impose new types of non-income taxes, including taxes based on a percentage of revenue. For example, several countries in the European Union have proposed or enacted taxes applicable to digital services, which includes business activities on social media platforms and online marketplaces, and would likely apply to our business. Many questions remain about the enactment, form and application

of these digital services taxes. The interpretation and implementation of the various digital services taxes (especially if there is inconsistency in the application of these taxes across tax jurisdictions) could have a materially adverse impact on our business, results of operations and cash flows. Moreover, if the US or other foreign tax authorities change applicable tax laws, our overall taxes could increase, and our business, financial condition or results of operations may be adversely impacted.

The United Kingdom's withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business.

Following a national referendum and enactment of legislation by the government of the United Kingdom, the United Kingdom formally withdrew from the European Union ("Brexit") and ratified a trade and cooperation agreement governing its future relationship with the European Union. The agreement, which is being applied provisionally from January 1, 2021 until it is ratified by the European Parliament and the Council of the European Union, addresses trade, economic arrangements, law enforcement, judicial cooperation and a governance framework including procedures for dispute resolution, among other things. Because the agreement merely sets forth a framework in many respects and will require complex additional bilateral negotiations between the United Kingdom and the European Union as both parties continue to work on the rules for implementation, significant political and economic uncertainty remains about how the precise terms of the relationship between the parties will differ from the terms before withdrawal.

We have users in the United Kingdom and the European Union and, as a result, we face risks associated with the potential uncertainty and disruptions that may follow Brexit and the implementation and application of the trade and cooperation agreement, including with respect to volatility in exchange rates and interest rates, disruptions to the free movement of data, goods, services, people and capital between the United Kingdom and the European Union and potential material changes to the regulatory regime applicable to our operations in the United Kingdom. The uncertainty concerning the United Kingdom's future legal, political and economic relationship with the European Union could adversely affect political, regulatory, economic or market conditions in the European Union, the United Kingdom and worldwide and could contribute to instability in global political institutions, regulatory agencies and financial markets. These developments have had and may continue to have a material adverse effect on global economic conditions and the stability of global financial markets and could significantly reduce global market liquidity and limit the ability of key market participants to operate in certain financial markets.

We may also face new regulatory costs and challenges as a result of Brexit that could have a material adverse effect on our operations. For example, as of January 1, 2021, the United Kingdom lost the benefits of global trade agreements negotiated by the European Union on behalf of its members, which may result in increased trade barriers that could make doing business in areas that are subject to such global trade agreements more difficult. In addition, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations as the United Kingdom determines which laws of the European Union to replace or replicate. There may continue to be economic uncertainty surrounding the consequences of Brexit that adversely impact customer confidence resulting in fewer users using or paying for our services, which could materially adversely affect our business, financial condition and results of operations.

The ongoing instability and uncertainty surrounding Brexit and the implementation and application of the Trade and Cooperation Agreement, could require us to restructure our business operations in the United Kingdom and the European Union and could have an adverse impact on our business and staff in the United Kingdom and European Union.

Risks Related to Our Intellectual Property

From time to time, we may be party to intellectual property-related litigation and proceedings that are expensive and time consuming to defend, and, if resolved adversely, could materially adversely impact our business, financial condition and results of operations.

Our commercial success depends in part on avoiding infringement, misappropriation or other violations of the intellectual property rights of third parties. However, we may become party to disputes from time to time over rights and obligations concerning intellectual property held by third parties, and we may not prevail in these disputes. Companies in the internet, technology and social media industries are subject to frequent litigation based on allegations of infringement, misappropriation or other violations of intellectual property rights. Furthermore, various “non-practicing entities” that own patents and other intellectual property rights often attempt to assert claims in order to extract value from technology companies and, given that these patent holding companies or other adverse intellectual property rights holders typically have no relevant product revenue, our own issued or pending patents and other intellectual property rights may provide little or no deterrence to these rights holders in bringing intellectual property rights claims against us. From time to time we may receive claims from third parties which allege that we have infringed upon their intellectual property rights. Further, from time to time we may introduce new products, product features and services, including in areas where we currently do not have an offering, which could increase our exposure to patent and other intellectual property claims from competitors and non-practicing entities. In addition, some of our agreements with third-party partners require us to indemnify them for certain intellectual property claims against them, which could require us to incur considerable costs in defending such claims, and may require us to pay significant damages in the event of an adverse ruling. Such third-party partners may also discontinue their relationships with us as a result of injunctions or otherwise, which could result in loss of revenue and adversely impact our business operations.

Although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees or consultants have inadvertently or otherwise used or disclosed intellectual property, including trade secrets, software code or other proprietary information, of a former employer or other third parties. Litigation may be necessary to defend against these claims and if we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Further, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. Additionally, any such assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property.

As we face increasing competition and develop new products, we expect the number of patent and other intellectual property claims against us may grow. There may be intellectual property or other rights held by others, including issued or pending patents, that cover significant aspects of our products and services, and we cannot be sure that we are not infringing or violating, and have not infringed or violated, any third-party intellectual property rights or that we will not be held to have done so or be accused of doing so in the future.

Any claim or litigation alleging that we have infringed or otherwise violated intellectual property or other rights of third parties, with or without merit, and whether or not settled out of court or determined in our favor, could be time-consuming and costly to address and resolve, and could divert the time and attention of our management and technical personnel. The outcome of any litigation is inherently uncertain, and

there can be no assurances that favorable final outcomes will be obtained in all cases. In addition, third parties may seek, and we may become subject to, preliminary or provisional rulings in the course of any such litigation, including potential preliminary injunctions requiring us to cease some or all of our operations. We may decide to settle such lawsuits and disputes on terms that are unfavorable to us. Similarly, if any litigation to which we are a party is resolved adversely, we may be subject to an unfavorable judgment that may not be reversed upon appeal, including being subject to a permanent injunction and being required to pay substantial monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a party's intellectual property rights. The terms of such a settlement or judgment may require us to cease some or all of our operations, pay substantial amounts to the other party, or admit liability. Moreover, as part of any settlement or other compromise to avoid complex, protracted litigation, we may agree not to pursue future claims against a third party, including for claims related to alleged infringement of our intellectual property rights. Part of any settlement or other compromise with another party may resolve a potentially costly dispute but may also have future repercussions on our ability to defend and protect our intellectual property rights, which in turn could adversely affect our business, financial conditions, and results of operations and prospects. In addition, we may have to seek a license to continue practices found to be in violation of a third-party's rights. If we are required, or choose to enter into royalty or licensing arrangements, such arrangements may not be available on reasonable terms, or at all, and may significantly increase our operating costs and expenses. Such arrangements may also only be available on a non-exclusive basis such that third parties, including our competitors, could have access to the same licensed technology to compete with us. As a result, we may also be required to develop or procure alternative non-infringing technology, which could require significant effort, time and expense or discontinue use of the technology. There also can be no assurance that we would be able to develop or license suitable alternative technology to permit us to continue offering the affected products or services as currently offered. If we cannot develop or license alternative technology for any allegedly infringing aspect of our business, we would be forced to limit our products and services and may be unable to compete effectively. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. Any of the foregoing, and any unfavorable resolution of such disputes and litigation, would materially and adversely impact our business, financial condition, results of operations and prospects.

We may fail to adequately obtain, protect and maintain our intellectual property rights or prevent third parties from making unauthorized use of such rights.

Our intellectual property is a material asset of our business and our success depends in part on our ability to protect our proprietary rights and intellectual property. For example, we rely heavily upon our trademarks, designs, copyrights, related domain names, social media handles and logos to market our brands and to build and maintain brand loyalty and recognition. We also rely upon proprietary technologies and trade secrets, as well as a combination of laws, and contractual restrictions, including confidentiality agreements with employees, customers, suppliers, affiliates and others, to establish, protect and enforce our various intellectual property rights. We have generally registered and continue to apply to register and renew, or secure by contract where appropriate, trademarks and service marks as they are developed and used, and reserve, register and renew domain names and social media handles as we deem appropriate. If our trademarks and trade names are not adequately protected, then we may not be able to build and maintain name recognition in our markets of interest and our business may be adversely affected. Effective trademark protection may not be available or may not be sought in every country in which our products are made available, in every class of goods and services in which we operate, and contractual disputes may affect the use of marks governed by private contract. Our registered or unregistered trademarks, tradenames or other intellectual property rights may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks.

Further, at times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. Similarly, not every variation of a domain name or social media handle may be available or be registered by us, even if available. The occurrence of any of these events could result in the erosion of our brands and limit our ability to market our brands using our various domain names and social media handles, as well as impede our ability to effectively compete against competitors with similar technologies or products, any of which could materially adversely affect our business, financial condition and results of operations. We are also party to certain agreements that may limit our trademark rights in certain jurisdictions; while we believe these agreements are unlikely to have a significant impact on our business as currently conducted, our ability to use our existing trademarks in new business lines in the future may be limited.

We cannot guarantee that our efforts to obtain and maintain intellectual property rights are adequate, that we have secured, or will be able to secure, appropriate permissions or protections for all of the intellectual property rights we use or rely on. Furthermore, even if we are able to obtain intellectual property rights, any challenge to our intellectual property rights could result in them being narrowed in scope or declared invalid or unenforceable. In addition, other parties may also independently develop technologies that are substantially similar or superior to ours and we may not be able to stop such parties from using such independently developed technologies from competing with us.

We also rely upon unpatented proprietary information and other trade secrets to protect intellectual property that may not be registrable, or that we believe is best protected by means that do not require public disclosure. While it is our policy to enter into confidentiality agreements with employees and third parties to protect our proprietary expertise and other trade secrets, we cannot guarantee that we have entered into such agreements with each party that has or may have had access to our proprietary information or trade secrets and, even if entered into, these agreements may otherwise fail to effectively prevent disclosure of proprietary information, may be limited as to their term and may not provide an adequate remedy in the event of unauthorized disclosure or use of proprietary information. Monitoring unauthorized uses and disclosures is difficult, and we do not know whether the steps we have taken to protect our proprietary technologies will be effective. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive and time-consuming, and the outcome is unpredictable. Some courts inside and outside the United States may be less willing or unwilling to protect trade secrets. In addition, trade secrets may be independently developed by others in a manner that could prevent legal recourse by us. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any such information was independently developed by a competitor, our competitive position would be materially adversely harmed.

Our intellectual property rights and the enforcement or defense of such rights may be affected by developments or uncertainty in laws and regulations relating to intellectual property rights. Moreover, many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, may not favor the enforcement of trademarks, copyrights, trade secrets and other intellectual property protection, which could make it difficult for us to stop the infringement, misappropriation or other violation of our intellectual property or marketing of competing products in violation of our intellectual property rights generally.

We also may be forced to bring claims against third parties to determine the ownership of what we regard as our intellectual property or to enforce our intellectual property rights against infringement, misappropriation or other violations by third parties. However, the measures we take to protect our intellectual property from unauthorized use by others may not be effective and there can be no assurance that our intellectual property rights will be sufficient to protect against others offering products or services that are substantially similar or superior to ours or that compete with our business. We may not prevail in

any intellectual property-related proceedings that we initiate against third parties. Further, in such proceedings or in proceedings before patent, trademark and copyright agencies, our asserted intellectual property could be found to be invalid or unenforceable, in which case we could lose valuable intellectual property rights. In addition, even if we are successful in enforcing our intellectual property against third parties, the damages or other remedies awarded, if any, may not be commercially meaningful. Regardless of whether any such proceedings are resolved in our favor, such proceedings could cause us to incur significant expenses and could distract our personnel from their normal responsibilities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Despite the measures we take to protect our intellectual property rights, our intellectual property rights may still not be adequate and protected in a meaningful manner, challenges to contractual rights could arise, third parties could copy or otherwise obtain and use our intellectual property without authorization, or laws and interpretations of laws regarding the enforceability of existing intellectual property rights may change over time in a manner that provides less protection. The occurrence of any of these events could impede our ability to effectively compete against competitors with similar technologies, any of which could materially adversely affect our business, financial condition and results of operations.

Our use of “open source” software and materials could subject our proprietary software to general release, adversely affect our ability to sell our products and services and subject us to possible litigation.

We use open source software, content and materials (Open Source Materials) in connection with a portion of our proprietary software and our service offerings and we expect to continue to use Open Source Materials in the future. Under certain circumstances, some open source licenses require users of the Open Source Materials to provide the user’s own proprietary source code to third parties upon request, to license the user’s own proprietary source code or other materials for the purpose of making derivative works, prohibit users from charging a fee to third parties in connection with the use of the user’s proprietary code, or require the relicensing of the Open Source Materials and derivatives thereof under the terms of the applicable license. While we employ practices designed to monitor our compliance with the licenses of third-party Open Source Materials and protect our proprietary source code and content, we cannot guarantee that we will be successful, that all Open Source Materials are reviewed prior to use in our products, that our developers have not incorporated Open Source Materials into our products, or that they will not do so in the future. Accordingly, we may face claims from others challenging our use of Open Source Materials or seeking to enforce the license terms applicable to such Open Source Materials, including by demanding public release of the Open Source Materials or derivative works or our proprietary source code and content that was developed or distributed in connection with such Open Source Materials. Such claims could also require us to purchase a commercial license or require us to devote additional research and development resources to change our software and content, any of which would have a negative effect on our business and results of operations. In addition, if the license terms for the open source code change, we may be forced to re-engineer our software, revise our content or otherwise incur additional costs. Additionally, the terms of many open source licenses to which we are subject have not been interpreted by US or foreign courts. There is a risk that open source licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to market or provide our products.

In addition, the use of open source software may entail greater risks than the use of third-party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. To the extent that our platform depends upon the successful operation of the open source software we use, any undetected errors or defects in this open source software could prevent the deployment or impair the functionality of our

platform, delay the introduction of new solutions, result in a failure of our platform, and injure our reputation. For example, undetected errors or defects in open source software could render it vulnerable to breaches or security attacks and make our systems more vulnerable to data breaches.

Our exposure to these risks may be increased as a result of evolving our core source code base, introducing new content and offerings, integrating acquired-company technologies, or making other business changes, including in areas where we do not currently compete. Any of the foregoing could adversely impact the value or enforceability of our intellectual property, and materially adversely affect our business, results of operations, and financial condition.

Risks Related to Ownership of our Class A Common Stock

We do not know whether an active, liquid and orderly trading market will continue to develop or be maintained for our Class A common stock.

An active public trading market for shares of our Class A common stock may not continue to develop or be sustained. If an active public market does not continue to develop or is not sustained, it may be difficult for you to sell your shares of Class A common stock at a price that is attractive to you, or at all. The lack of an active market may also reduce the fair market value of your shares.

The market price of shares of our Class A common stock may be volatile or may decline regardless of our operating performance, which could cause the value of your investment to decline.

The trading price of our Class A common stock may be highly volatile and could be subject to wide fluctuations. Securities markets worldwide experience significant price and volume fluctuations. This market volatility, as well as general economic, market or political conditions, could reduce the market price of shares of our Class A common stock regardless of our operating performance. In addition, our operating results could be below the expectations of public market analysts and investors due to a number of potential factors, including variations in our quarterly operating results or dividends, if any, to stockholders, additions or departures of key management personnel, failure to meet analysts' earnings estimates, publication of research reports about our industry, litigation and government investigations, changes or proposed changes in laws or regulations or differing interpretations or enforcement thereof affecting our business, adverse market reaction to any indebtedness we may incur or securities we may issue in the future, changes in market valuations of similar companies or speculation in the press or investment community, announcements by our competitors of significant contracts, acquisitions, dispositions, strategic partnerships, joint ventures or capital commitments, adverse publicity about the industries we participate in or individual scandals, and in response the market price of shares of our Class A common stock could decrease significantly.

Stock markets and the price of our Class A shares may experience extreme price and volume fluctuations. In the past, following periods of volatility in the overall market and the market price of a company's securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

If securities or industry analysts do not publish research or reports about our business, or if they downgrade their recommendations regarding our Class A common stock, our stock price and trading volume could decline.

The trading market for our Class A common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. If any of the analysts who cover us downgrade our Class A common stock or publish inaccurate or unfavorable research about our business,

our Class A common stock price may decline. If analysts cease coverage of us or fail to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause our Class A common stock price or trading volume to decline and our Class A common stock to be less liquid.

The dual class structure of our common stock has the effect of concentrating voting control with those stockholders who held our capital stock prior to the listing of our Class A common stock on the Nasdaq Global Select Market, including our directors, executive officers, and 5% stockholders and their respective affiliates, who held in the aggregate 92.4% of the voting power of our capital stock as of December 31, 2021. This ownership will limit or preclude your ability to influence corporate matters, including the election of directors, amendments of our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval.

Our Class B common stock has 20 votes per share, and our Class A common stock has one vote per share. As of December 31, 2021, our directors, executive officers, and 5% stockholders and their affiliates held in the aggregate 92.4% of the voting power of our capital stock. Because of the 20-to-one voting ratio between our Class B and Class A common stock, the holders of our Class B common stock collectively could continue to control a significant percentage of the combined voting power of our common stock and therefore be able to control all matters submitted to our stockholders for approval until all outstanding shares of Class A and Class B common stock have converted automatically into shares of a single class of common stock. This concentrated control may limit or preclude your ability to influence corporate matters for the foreseeable future, including the election of directors, amendments of our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval. In addition, this may prevent or discourage unsolicited acquisition proposals or offers for our capital stock that you may believe are in your best interest as one of our stockholders.

In addition, future transfers by holders of Class B common stock will generally result in those shares converting to Class A common stock, subject to limited exceptions, such as certain transfers effected for estate planning purposes. The conversion of Class B common stock to Class A common stock 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, it is possible that one or more of the persons or entities holding our Class B common stock could gain significant voting control as other holders of Class B common stock sell or otherwise convert their shares into Class A common stock.

In addition, while we do not expect to issue any additional shares of Class B common stock, any future issuances of Class B common stock would be dilutive to holders of Class A common stock.

We cannot predict the impact our dual class structure may have on the market price of our Class A common stock.

We cannot predict whether our dual class structure will result in a lower or more volatile market price of our Class A common stock, in adverse publicity or other adverse consequences. Certain index providers have announced restrictions on including companies with multiple class share structures in certain of their indices. For example, S&P Dow Jones has stated that companies with multiple share classes will not be eligible for inclusion in the S&P Composite 1500 (composed of the S&P 500, S&P MidCap 400 and S&P SmallCap 600), although existing index constituents in July 2017 were grandfathered. Under the announced policies, our dual class capital structure would make us ineligible for inclusion in any of these indices. Given the sustained flow of investment funds into passive strategies that seek to track certain indices, exclusion from stock indices would likely preclude investment by many of these funds and could

make our Class A common stock less attractive to other investors. As a result, the market price of our Class A common stock could be materially adversely affected.

Future sales and issuances of our Class A common stock or rights to purchase our Class A common stock, including pursuant to our equity incentive plans, or other equity securities or securities convertible into our Class A common stock, could result in additional dilution of the percentage ownership of our stockholders and could cause the stock price of our Class A common stock to decline.

In the future, we may sell Class A common stock, convertible securities, or other equity securities, including preferred securities, in one or more transactions at prices and in a manner we determine from time to time. We also expect to issue Class A common stock to employees, consultants, and directors pursuant to our equity incentive plans. If we sell Class A common stock, convertible securities, or other equity securities in subsequent transactions, or Class A common stock or Class B common stock is issued pursuant to equity incentive plans, investors may be materially diluted. New investors in subsequent transactions could gain rights, preferences, and privileges senior to those of holders of our Class A common stock.

We may issue preferred stock whose terms could materially adversely affect the voting power or value of our Class A common stock.

Our amended and restated certificate of incorporation authorizes us to issue, without the approval of our stockholders, one or more classes or series of preferred stock having such designations, preferences, limitations and relative rights, including preferences over our Class A common stock respecting dividends and distributions, as our board of directors may determine. The terms of one or more classes or series of preferred stock could adversely impact the voting power or value of our Class A common stock. For example, we might grant holders of preferred stock the right to elect some number of our directors in all events or on the happening of specified events or the right to veto specified transactions. Similarly, the repurchase or redemption rights or liquidation preferences we might assign to holders of preferred stock could affect the residual value of the Class A common stock.

Future sales of our common stock in the public market could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur in large quantities, could cause the market price of our Class A common stock to decline and could impair our ability to raise capital through the sale of additional equity securities.

All shares of Class A common stock sold in our IPO are freely tradable without restrictions or further registration under the Securities Act except for any shares held by our affiliates as defined in Rule 144 under the Securities Act ("Rule 144").

Moreover, as of December 31, 2021, the holders of up to 13,798,082 shares of our Class B common stock have rights, subject to some conditions, to require us to file registration statements for the public resale of the Class A common stock issuable upon conversion of such shares or to include such shares in registration statements that we may file for us or other stockholders. Any registration statement we file to register additional shares, whether as a result of registration rights or otherwise, could cause the market price of our Class A common stock to decline or be volatile.

Further, as of December 31, 2021, we had options outstanding that, if fully exercised, would result in the issuance of 5,220,500 shares of Class A common stock and 1,034,500 shares of Class B common stock, as well as 730,000 shares of Class A common stock issuable upon vesting and settlement of outstanding RSUs. We have registered on Form S-8 under the Securities Act the shares of our common stock subject

to outstanding stock options and RSUs as of the date of the Final Prospectus (defined below) and shares that will be issuable pursuant to future awards granted under our equity incentive plan. These shares can be freely sold in the public market upon issuance, subject to applicable vesting requirements, compliance by affiliates with Rule 144, and other restrictions provided under the terms of the applicable plan and/or the award agreements entered into with participants.

We may issue our shares of common stock or securities convertible into our common stock from time to time in connection with financings, acquisitions, investments, or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and cause the trading price of our Class A common stock to decline.

We do not intend to pay dividends for the foreseeable future. Consequently, any gains from an investment in our Class A common stock will likely depend on whether the price of our Class A common stock increases.

We do not intend to pay any dividends on our Class A common stock in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the operation and growth of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. 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.

Anti-takeover provisions contained in our amended and restated certificate of incorporation and amended and restated bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

Our amended and restated certificate of incorporation and amended and restated bylaws contain and Delaware law contains provisions which could have the effect of rendering more difficult, delaying or preventing an acquisition deemed undesirable by our board of directors. Our corporate governance documents provide for:

- a dual-class structure;
- a classified board of directors with three-year staggered terms, who can only be removed for cause, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors to set the size of the board of directors and to elect a director to fill a vacancy, however occurring, including by an expansion of the board of directors, which prevents stockholders from being able to fill vacancies on our board of directors;
- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the price and other terms of those shares, including voting or other rights or preferences, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror;
- the ability of our board of directors to alter our amended and restated bylaws without obtaining stockholder approval;
- in addition to our board of director's ability to adopt, amend, or repeal our amended and restated bylaws, our stockholders may adopt, amend, or repeal our amended and restated bylaws only

with the affirmative vote of the holders of at least 66 2/3% of the voting power of all our then-outstanding shares of capital stock;

- the required approval of (i) at least 66 2/3% of the voting power of the outstanding shares of capital stock entitled to vote generally in the election of directors, voting together as a single class, to adopt, amend, or repeal certain provisions of our restated certificate of incorporation and (ii) for so long as any shares of Class B common stock are outstanding, the holders of at least 80% of the shares of Class B common stock outstanding at the time of such vote, voting as a separate series, to adopt, amend, or repeal certain provisions of our restated certificate of incorporation;
- the ability of stockholders to act by written consent only as long as holders of our Class B common stock hold at least 50% of the voting power of our capital stock;
- the requirement that a special meeting of stockholders may be called only by an officer of our company pursuant to a resolution adopted by a majority of our board of directors then in office or the chairperson of our board; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of us.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the General Corporation Law of the State of Delaware (the Delaware General Corporation Law), which prevents some stockholders holding more than 15% of our outstanding common stock from engaging in certain business combinations without approval of the holders of substantially all of our outstanding common stock.

Any provision of our certificate of incorporation, 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 common stock, and could also affect the price that some investors are willing to pay for our common stock.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws and our indemnification agreements that we have entered or intend to enter into with our directors and officers provide that:

- we will indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the

registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful;

- we may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law;
- we are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification;
- the rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons; and
- we may not retroactively amend our amended and restated bylaw provisions to reduce our indemnification obligations to directors, officers, employees, and agents.

While we have procured directors' and officers' liability insurance policies, such insurance policies may not be available to us in the future at a reasonable rate, may not cover all potential claims for indemnification, and may not be adequate to indemnify us for all liability that may be imposed.

Our amended and restated certificate of incorporation and amended and restated bylaws provide for an exclusive forum in the Court of Chancery of the State of Delaware for certain disputes between us and our stockholders, and that the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action under the Securities Act, 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 and amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the exclusive forum for 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 amended and restated bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine; provided that, the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction; and provided further that, if and only if the Court of Chancery of the State of Delaware dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in the State of Delaware. Our amended and restated certificate of incorporation and amended and restated bylaws also provide that the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action against us or any of our directors, officers, or employees arising under the Securities Act. Nothing in our amended and restated certificate of incorporation or amended and restated bylaws precludes stockholders that assert claims under the Exchange Act from bringing such claims in state or federal court, subject to applicable law.

We believe these provisions may benefit us by providing increased consistency in the application of Delaware law and federal securities laws by chancellors and judges, as applicable, particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, other employees or stockholders, which may discourage lawsuits with respect to such claims. If a court were to find the choice of forum provision that will be contained in our amended and restated certificate of incorporation or amended and restated

bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could materially adversely affect our business, results of operations, and financial condition.

We are an emerging growth company and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”), and we may take advantage of certain exemptions and relief from various reporting requirements that are applicable to other public companies that are not emerging growth companies. In particular, while we are an emerging growth company, we will not be required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act; we will be exempt from any rules that could be adopted by the Public Company Accounting Oversight Board requiring mandatory audit firm rotations or a supplement to the auditor’s report on financial statements; we will be subject to reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements; and we will not be required to hold non-binding advisory votes on executive compensation or stockholder approval of any golden parachute payments not previously approved.

In addition, under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards would otherwise apply to private companies. While we have not historically delayed the adoption of new or revised accounting standards until such time as those standards would apply to private companies, we have elected to take advantage of this extended transition period and, as a result, our operating results and financial statements in the future may not be comparable to the operating results and financial statements of companies who have adopted the new or revised accounting standards.

We will remain an emerging growth company until the earliest of (1) December 31, 2026, (2) the last day of the fiscal year in which we have total annual gross revenue of at least \$1.07 billion, (3) the last day of the fiscal year in which we are deemed to be a “large accelerated filer” as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our common stock held by non-affiliates exceeded \$700.0 million as of the last business day of the second fiscal quarter of such year or (4) the date on which we have issued more than \$1.0 billion in non-convertible debt securities during the prior three-year period.

The exact implications of the JOBS Act are subject to interpretation and guidance by the SEC and other regulatory agencies, and we cannot assure you that we will be able to take advantage of all of the benefits of the JOBS Act. In addition, investors may find our common stock less attractive to the extent we rely on the exemptions and relief granted by the JOBS Act. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may decline or become more volatile.

General Risk Factors

We will incur significant expenses as a result of being a public company, which could materially adversely affect our business, results of operations, and financial condition.

As a public company, we will incur significant legal, accounting, and other expenses that we did not incur as a private company. We are subject to the reporting requirements of the Exchange Act, the applicable requirements of the Sarbanes-Oxley Act, the Dodd-Frank Act, the rules and regulations of the SEC, and the Listing Rules of the Nasdaq Global Select Market. Stockholder activism and the level of government intervention and regulatory reform may lead to substantial new regulations and disclosure

obligations, which may lead to additional significant compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate. The increased costs will increase our net loss or decrease our net income, and may require us to reduce costs in other areas of our business or increase our service fees which could result in a reduction in bookings. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on our board committees, or as executive officers. Furthermore, if we are unable to satisfy our obligations as a public company, we could be subject to delisting of our Class A common stock, fines, sanctions, and other regulatory action and potentially civil litigation.

Further, the majority of our management team, including our Chief Executive Officer and Chief Financial Officer, have either no or limited experience in managing publicly-traded companies. Our management team may not successfully or efficiently manage our transition to being a public company and the continuous scrutiny of securities analysts and investors. These new obligations and constituents will require significant attention from our senior management and could divert their attention away from the day-to-day management of our business, and could materially adversely affect our business, results of operations, and financial condition.

As a public reporting company, we are subject to rules and regulations established by the SEC and Nasdaq regarding our internal control over financial reporting. We may not complete needed improvements to our internal control over financial reporting in a timely manner, or these internal controls may not be determined to be effective, which may adversely affect investor confidence in our company and, as a result, the value of our Class A common stock and your investment .

As a result of becoming a public company, we will be required, under Section 404 of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting beginning with our Annual Report on Form 10-K for the year ended December 31, 2022. In support of such certifications, we will be required to document and make significant changes and enhancements, including potentially hiring additional personnel, to our internal control over financial reporting. Likewise, when we cease to be an “emerging growth company” as defined under the JOBS Act, our auditors will be required to express an opinion on the effectiveness of our internal controls, unless we are then eligible for any other exemption from such a requirement. As a result, we anticipate investing significant resources to enhance and maintain our financial and managerial controls, reporting systems, and procedures.

To date, neither our management nor our independent registered public accounting firm has performed an evaluation of our internal control over financial reporting in accordance with the requirements of Section 404 of the Sarbanes-Oxley Act because no such evaluation has been required. If our management is unable to certify the effectiveness of our internal controls, our independent registered public accounting firm is unable to express an unqualified opinion on the effectiveness of our internal control over financial reporting, we identify or fail to remediate material weaknesses in our internal controls, or we do not effectively or accurately report our financial performance to the appropriate regulators on a timely basis, we could be subject to regulatory scrutiny and a loss of investor confidence, which could significantly harm our reputation and our stock price, and materially adversely affect our business, results of operations, and financial condition.

We previously identified a material weakness in our internal control over financial reporting in fiscal year 2019. Specifically, we did not have a sufficient complement of personnel with an appropriate degree of internal controls and accounting knowledge, we did not have a sufficiently documented risk assessment process to identify and analyze risks of misstatement due to error and/or fraud, and in certain cases we did not have appropriate reviews over journal entries and third party reported information to allow for

reliable and timely financial reporting. While we believe we have remediated this material weakness as of December 31, 2021, we can give no assurance that additional material weaknesses will not be identified in the future. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our consolidated financial statements will not be prevented or detected on a timely basis. We cannot assure you that the measures we have taken to date, and actions we may take in the future, will be sufficient to prevent or avoid potential future material weaknesses. A material weakness in our internal control over financial reporting could result in an increased probability of fraud, the potential loss of customers, litigation from our stockholders, reduction in our ability to obtain financing, and require additional expenditures to remediate. Our failure to implement and maintain effective internal control over financial reporting could result in errors in our financial statements that could result in loss of investor confidence in the accuracy and completeness of our financial reports and a decline in our stock price, and we could be subject to sanctions or investigations by the SEC or other regulatory authorities.

Changes in accounting principles or their application to us could result in unfavorable accounting charges or effects, which could adversely affect our operating results and prospects.

We prepare consolidated financial statements in accordance with accounting principles generally accepted in the United States. The accounting for our business is subject to change based on the evolution of our business model, interpretations of relevant accounting principles, enforcement of existing or new regulations, and changes in policies, rules, regulations, and interpretations, of accounting and financial reporting requirements of the SEC or other regulatory agencies. A change in any of these principles or guidance, or in their interpretations or application to us, may have a significant effect on our reported results, as well as our processes and related controls, and may retroactively affect previously reported results, which may negatively impact our financial statements, which may in turn adversely affect our prospects. It is difficult to predict the impact of future changes to accounting principles and accounting policies over financial reporting, any of which could adversely affect our results of operations and financial condition and could require significant investment in systems and personnel.

If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our operating results could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

The preparation of financial statements in conformity with generally accepted accounting principles in the United States requires us to make estimates and assumptions that affect the reported amount of assets and liabilities and the disclosure of contingent liabilities as of the date of the financial statements and the reported amount of revenues and expenses during the reporting period. For example, we make certain assumptions about the interpretation of these principles and accounting treatment of our non-cash stock-based compensation expense and related obligations with respect to our financial statements. If these assumptions turn out to be unfounded, our stock-based compensation expense could be materially higher than expected for current and future periods, which could have a material adverse effect on our net loss. We base estimates and assumptions on historical experience and on various other factors that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. We may make estimates regarding activities for which the accounting treatment is still uncertain. Actual results could differ from those estimates. If our assumptions change or if actual circumstances differ from our assumptions, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our common stock.

Item 1B. Unresolved Staff Comments

None

Item 2. Properties

We lease approximately 84,000 square feet in multiple facilities in Pittsburgh, Pennsylvania where we operate our headquarters. Our headquarters currently accommodates our principal executive, development, engineering, product, marketing, business development, human resources, finance, legal, information technology and administrative activities.

Outside of Pittsburgh, we and our subsidiaries in China and Germany use co-working space as needed for the business. As of December 31, 2021, we have membership agreements with WeWork for offices in or near New York, Seattle, Beijing, Tokyo, and Berlin.

We believe that our existing facilities are sufficient for our current needs. We believe that suitable additional or substitute space will be available as needed to accommodate changes in our operations.

Item 3. Legal Proceedings

From time to time we may be involved in claims and proceedings arising in the course of our business. The outcome of any such claims or proceedings, regardless of the merits, is inherently uncertain. We are not currently party to any material legal proceedings.

Item 4. Mine Safety Disclosures

Not applicable.

Part II Financial Information

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

Market Information for Class A Common Stock

Our Class A common stock has been listed on the Nasdaq Global Select Market under the symbol "DUOL" since July 28, 2021. Prior to that date, there was no public trading market for our Class A common stock.

Holders of our Common Stock

As of March 3, 2022, there were 22,592,387 stockholders of record of our Class A common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

As of March 3, 2022, there were 16,032,907 stockholders of record of our Class B common stock.

Dividend Policy

We have never declared or paid any cash dividends on our common stock, and we do not currently intend to pay any cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to support operations and to finance the growth and development of our business. Any future determination related to dividend policy will be made at the discretion of our board of directors, subject to applicable laws and the restrictions set forth in any of our contractual agreements, and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions and capital requirements. Our future ability to pay cash dividends on our common stock may also be limited by the terms of any future debt or preferred securities we may issue or any future credit facilities we may enter into.

Unregistered Sales of Equity Securities

None

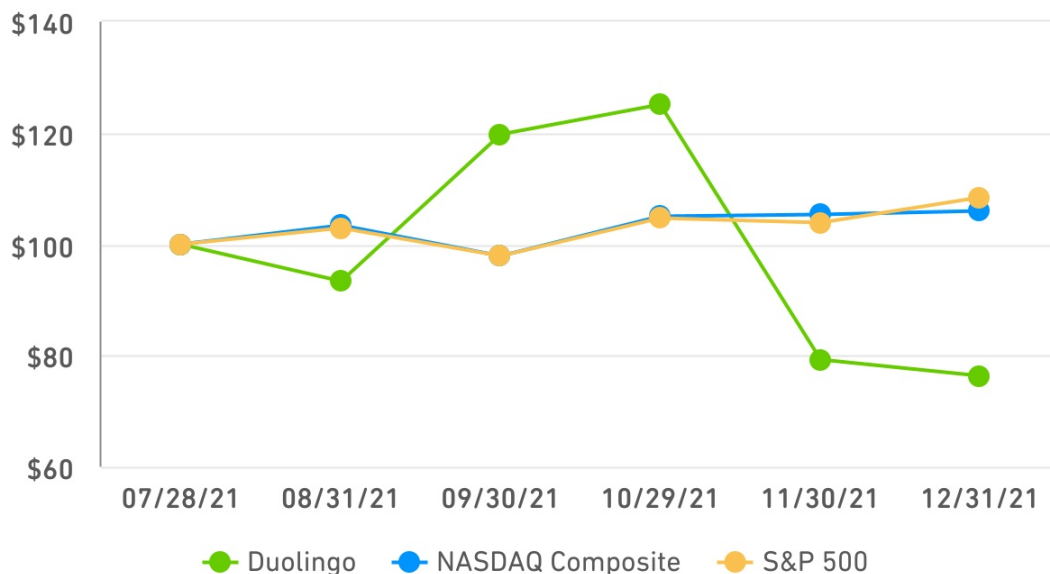
Issuer Purchases of Equity Securities

None

Performance Graph

The graph below compares the cumulative total stockholder return on our Class A common stock with the cumulative total return on the Nasdaq Composite Index ("NASDAQ"), S&P 500 Index ("S&P 500"), and the S&P 500 Information Technology Index ("S&P 500 IT"). The graph assumes \$100 was invested at the market close on July 28, 2021, which was the first day our Class A common stock began trading. Data for the Nasdaq Composite Index, S&P 500 Index, and S&P 500 Information Technology Index assume reinvestment of dividends. The graph uses the closing market price on July 28, 2021 of \$134.26 per share as the initial value of our Class A common stock. The comparisons in the graph below are based upon historical data and are not indicative of, nor intended to forecast, future performance of our Class A common stock.

Comparison of Cumulative Total Return



Item 6. Selected Financial Data

Not required.

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 our Consolidated Financial Statements and related notes included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements, such as those relating to our plans, objectives, expectations, intentions, and beliefs, that involve risks, uncertainties and assumptions. Our actual results could differ materially from these forward-looking statements as a result of many factors, including those discussed in Part I, Item 1A. "Risk Factors," "Special Note Regarding Forward-Looking Statements," and included elsewhere in this Annual Report on Form 10-K. A discussion of our audited financial statements and the notes for the fiscal year ended December 31, 2020 and the related notes has been reported previously in our final prospectus, dated as of July 27, 2021, filed pursuant to Rule 424(b)(4) (File No. 333-257483) with the SEC on July 28, 2021 (the "Final Prospectus"), under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations." Our historical results are not necessarily indicative of the results that may be expected for any periods in the future.

Amounts reported in millions are rounded based on the amounts in thousands. As a result, the sum of the components reported in millions may not equal the total amount reported in millions due to rounding. In addition, percentages presented are calculated from the underlying numbers in thousands and may not add to their respective totals due to rounding.

Overview

Our flagship app has organically become the world's most popular way to learn languages and the top-grossing Education app in the App Stores, offering courses in over 40 languages to approximately 42

million monthly active users as of December 31, 2021. We believe that we have become the preeminent online destination for language learning due to our beautifully designed products, exceptional user engagement, and demonstrated learning efficacy.

Initial Public Offering

On July 30, 2021, Duolingo completed its Initial Public Offering (“IPO”) of 5.9 million shares of its Class A common stock at a price to the public of \$102.00 per share, 4.5 million of which were sold by the Company and 1.4 million of which were sold by certain selling stockholders, which includes the exercise in full by the underwriters of their option to purchase from the Company an additional 0.8 million shares of the Company’s Class A common stock. The gross proceeds to the Company from the IPO were \$455.5 million, before deducting underwriting discounts and commissions and offering expenses payable by the Company. The Company did not receive any proceeds from the sale of shares of Class A common stock in the offering by the selling stockholders. Immediately prior to the completion of the IPO, all convertible preferred stock outstanding, totaling approximately 19.1 million shares, was automatically converted into an equivalent number of shares of Class B common stock on a one-to-one basis and their carrying value of \$182.6 million was reclassified to additional paid-in capital within stockholders’ equity (deficit). Additionally, on July 15, 2021, 6.9 million shares held by our founders were exchanged from Class A common stock into Class B common stock.

Our Business Model

How We Generate Revenue

We use a freemium business model that relies on a premium subscription offering, advertising, and in-app-purchases (IAPs) to produce revenue. We believe the following key attributes of our freemium subscription business model are core to our success.

- **Large Market:** There is an enormous pool of potential language learners globally that HolonIQ estimates at approximately 2 billion people.
- **Free Users:** Since none of our learning content is behind a paywall, anyone can download the Duolingo app, use it for as long as they like, and complete any of our courses free of charge. This has allowed us to scale to 42 million MAUs for the quarter ended December 31, 2021. These millions of learners provide two benefits to our business model:
 - They become advocates for Duolingo and provide word-of-mouth publicity for our product, which enables our growth and has allowed us to make very selective and efficient marketing investments.
 - Our users complete over 500 million exercises every day, generating large amounts of data that powers our high-volume A/B testing and novel AI techniques. We use this data and the insights that come from it to continually improve both engagement and efficacy.
- **Paid Subscriber Conversion:** As learners tend to use our product for months or even years before they decide to subscribe, we enjoy economic benefits from attracting new users well into their tenure on the platform. In 2021, subscribers made up 6% of our average MAUs.

Subscription

Our subscription offering is called Duolingo Plus. It offers learners features such as an ad-free experience, along with additional learning and gamification features that enhance their learning experience. One such enhancement is unlimited Hearts, which give learners more flexibility in how they move through course content.

Advertising and Other Revenue

For users who are unable or unwilling to pay a subscription fee, we provide free access to our product and generate advertising revenue from the sale of display and video advertising delivered through advertising impressions. We generally enter into arrangements with the major programmatic advertising networks to monetize our advertising inventory. Our advertising revenue is primarily a function of the number of our free users, hours of engagement of our free users, and our ability to provide innovative advertising placements that are relevant to our users and enhance returns for our advertising partners.

In-app purchases consist of learners purchasing one-time benefits within the app, such as “streak freezes” and “timer boosts.”

In addition to monetizing the Duolingo language learning app, we generate revenue from the Duolingo English Test by charging test takers a one-time fee that generally costs \$49. University program acceptance is a driver of Duolingo English Test revenue. As of December 31, 2021, over 3,000 higher education programs around the world accept the Duolingo English Test results as proof of English proficiency for international student admissions, including 18 of the top 20 undergraduate programs in the United States according to US News and World Report.

Key Operating Metrics and Non-GAAP Financial Measures

We regularly review a number of key operating metrics and non-GAAP financial measures to evaluate our business, measure our performance, identify trends, prepare financial projections and make business decisions. The measures set forth below should be considered in addition to, not as a substitute for or in isolation from, our financial results prepared in accordance with GAAP. Monthly active users (MAUs) and daily active users (DAUs), along with paid subscribers, are operating metrics that help inform management about the underlying growth in users of our platform, and are a measure of our monetization efforts. To calculate the year-over-year change in MAUs and DAUs for a given period, we subtract the average for the same period in the previous year from the average for the same period in the current year and divide the result by the average for the same period in the previous year. Other companies, including companies in our industry, may calculate these measures differently or not at all, which reduces their usefulness as comparative measures.

<i>(Operating metrics are in millions)</i>	Three Months Ended December 31,		Year Ended December 31,	
	2021	2020	2021	2020
Operating Metrics				
Monthly active users (MAUs)	42.4	37.0	40.5	36.7
Daily active users (DAUs)	10.1	8.4	9.6	8.2
Paid subscribers (at period end)	2.5	1.6	2.5	1.6

	Year Ended December 31,	
	2021	2020
Operating Metrics		
Subscription bookings	\$ 224,520	\$ 144,379
Total bookings	\$ 294,247	\$ 190,181
Non-GAAP Financial Measures		
Net loss (GAAP)	\$ (60,135)	\$ (15,776)
Adjusted EBITDA	\$ (1,066)	\$ 3,630
Net cash provided by operating activities (GAAP)	\$ 9,170	\$ 17,708
Free cash flow	\$ 12,746	\$ 13,976

Operating Metrics

Monthly active users (MAUs). MAUs are defined as unique Duolingo users who engage with our mobile language learning application or the language learning section of our website each month. MAUs are reported for a measurement period by taking the average of the MAUs for each calendar month in that measurement period. MAUs are a measure of the size of our global active user community on Duolingo.

We had approximately 42.4 million and 37.0 million MAUs for the three months ended December 31, 2021 and 2020, respectively, representing an increase of 15%. We grew MAUs through product initiatives that made the app more social and engaging and through brand marketing, both of which helped us attract new users, retain existing users, and reengage the millions of former users who return to our language learning app.

Daily active users (DAUs). DAUs are defined as unique Duolingo users who engage with our mobile language learning application or the language learning section of our website each calendar day. DAUs are reported for a measurement period by taking the average of the DAUs for each day in that measurement period. DAUs are a measure of the consistent engagement of our global user community on Duolingo.

We had approximately 10.1 million and 8.4 million DAUs for the three months ended December 31, 2021 and 2020, respectively, representing an increase of 20%. The DAU / MAU ratio, which we believe is an indicator of user engagement, increased to 23.8% from 22.8% a year ago. We grew DAUs through many of the same initiatives as we grew MAUs, like making the product more fun and engaging, as well as through our marketing efforts.

Paid Subscribers. Paid subscribers are defined as users who pay for access to Duolingo Plus, including subscribers who pay for a family plan, and had an active subscription as of the end of the measurement period. Each unique user account is treated as a single paid subscriber regardless of whether such user purchases multiple subscriptions, and the count of paid subscribers does not include users who are currently on a free trial or who are non-paying members of a family plan.

As of December 31, 2021 and 2020, we had approximately 2.5 million and 1.6 million paid subscribers, respectively, representing an increase of 56%. We grew paid subscribers through product improvements that increased the size of our free user base, led to higher conversion of free users to paid subscribers, and by better retaining subscribers.

Subscription Bookings and Total Bookings. Subscription bookings represent the amounts we receive from purchases of a subscription to Duolingo Plus. Total bookings represent the amounts we receive from purchases of a subscription to Duolingo Plus, a registration for a Duolingo English Test, an in-app

purchase for a virtual good and from advertising networks for advertisements served to our users. We believe bookings provide an indication of trends in our operating results, including cash flows, that are not necessarily reflected in our revenues because we recognize subscription revenues ratably over the lifetime of a subscription, which is generally from one to twelve months.

For the years ended December 31, 2021 and 2020, we generated \$224.5 million and \$144.4 million of subscription bookings, respectively, representing an increase of 56%. We grew subscription bookings by selling more first-time and renewal subscriptions as well as subscriptions to subscribers who previously had a subscription and return. As we grow our user base, convert a greater proportion of users to first-time subscribers, increase renewal rates, and increase the proportion of re-subscribers, we increase subscription bookings.

For the years ended December 31, 2021 and 2020, we generated \$294.2 million and \$190.2 million total bookings, respectively, representing an increase of 55%. We grew total bookings through the growth in subscription bookings noted above, in addition to growth in Advertising, Duolingo English Test, and other bookings.

Non-GAAP Financial Measures

We use certain non-GAAP financial measures to supplement our Consolidated Financial Statements, which are presented in accordance with GAAP. These non-GAAP financial measures include Adjusted EBITDA and free cash flow. We use these non-GAAP financial measures for financial and operational decision-making and as a means to evaluate period-to-period comparisons. By excluding certain items that may not be indicative of our recurring core operating results, we believe that Adjusted EBITDA and free cash flow provide meaningful supplemental information regarding our performance. Accordingly, we believe these non-GAAP financial measures are useful to investors and others because they allow for additional information with respect to financial measures used by management in its financial and operational decision-making and they may be used by our institutional investors and the analyst community to help them analyze the health of our business. However, there are a number of limitations related to the use of non-GAAP financial measures, and these non-GAAP measures should be considered in addition to, not as a substitute for or in isolation from, our financial results prepared in accordance with GAAP. Other companies, including companies in our industry, may calculate these non-GAAP financials measures differently or not at all, which reduces their usefulness as comparative measures.

Adjusted EBITDA. Adjusted EBITDA is defined as net loss excluding interest (income) expense, net, income tax provision, depreciation and amortization, Initial Public Offering (“IPO”) and public company readiness costs, stock-based compensation expenses related to equity awards, tender offer-related costs and other expenses. Adjusted EBITDA is used by management to evaluate the financial performance of our business and we present Adjusted EBITDA because we believe it is helpful in highlighting trends in our operating results and that it is frequently used by analysts, investors and other interested parties to

evaluate companies in our industry. The following table presents a reconciliation of our net loss, the most directly comparable financial measure presented in accordance with GAAP, to Adjusted EBITDA.

<i>(In thousands)</i>	Year Ended December 31,	
	2021	2020
Net loss	\$ (60,135)	\$ (15,776)
Interest (income) expense, net	(19)	(231)
Provision for income taxes	177	68
Depreciation and amortization	2,726	2,256
IPO and public company readiness costs (1)	3,909	282
Stock-based compensation expenses related to equity awards (2)	42,457	17,031
Tender offer-related costs (3)	5,599	—
Other expenses (4)	4,220	—
Adjusted EBITDA	<u>\$ (1,066)</u>	<u>\$ 3,630</u>

- (1) IPO and public company readiness costs include costs associated with IPO readiness and establishment of our public company structure and processes, including consultant costs. These costs are included within our Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K as follows:

<i>(In thousands)</i>	Year Ended December 31,	
	2021	2020
Research and development	\$ 46	\$ —
Sales and marketing	459	—
General and administrative	3,404	282
Total	<u>\$ 3,909</u>	<u>\$ 282</u>

- (2) In addition to stock-compensation expense of \$40,804 and \$17,031 for the years ended December 31, 2021 and 2020, respectively, this includes costs incurred related to taxes paid during 2021 on equity transactions of \$1,653, of which \$631 was included within Research and development, \$53 was included within Sales and marketing and \$969 was included within General and administrative in our Consolidated Statement of Operations and Comprehensive Loss.

- (3) Includes costs related to our tender offer initiated in February 2021 (see Note 9 to our Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K), including fees incurred, as follows:

<i>(In thousands)</i>	Cost of revenues	Research and development	Sales and marketing	General and administrative	Total
Tender offer	\$ 10	\$ 3,302	\$ 173	\$ 1,790	\$ 5,275
Fees and taxes paid on tender offer	\$ —	\$ —	\$ —	\$ 324	\$ 324
Total	<u>\$ 10</u>	<u>\$ 3,302</u>	<u>\$ 173</u>	<u>\$ 2,114</u>	<u>\$ 5,599</u>

- (4) Represents one-time cash awards to Duolingo contributors under our non-employee volunteer program included within Sales and marketing expenses within our Consolidated Statement of Operations and Comprehensive Loss. See Note 2 included in our Consolidated Financial Statements elsewhere in this Annual Report on Form 10-K.

Adjusted EBITDA increases as we grow revenue, improve gross margin, and reduce operating expenses as a percentage of revenue, or through a combination of those drivers. For the year ended December 31, 2021, we incurred a loss of \$1.1 million and for the year ended December 31, 2020 we generated income of \$3.6 million of Adjusted EBITDA, respectively. The decrease in Adjusted EBITDA occurred because operating expenses, adjusted for costs incurred related to IPO and public company readiness and other costs which did not occur in the prior year, grew at a higher rate than revenues and gross profit.

Free Cash Flow: Free cash flow represents net cash provided by operating activities, reduced by purchases of property and equipment, capitalized software development costs, and increased by IPO and public company readiness costs, taxes paid related to stock-based compensation equity awards and other costs, as we believe they are not indicative of future liquidity. We believe that free cash flow is a measure of liquidity that provides useful information to our management, investors and others in

understanding and evaluating the strength of our liquidity and future ability to generate cash that can be used for strategic opportunities or investing in our business. The following table presents a reconciliation of net cash provided by operating activities, the most directly comparable financial measure calculated in accordance with GAAP, to free cash flow:

<i>(In thousands)</i>	Year Ended December 31,	
	2021	2020
Net cash provided by operating activities	\$ 9,170	\$ 17,708
Less: Capitalized software development costs	(2,620)	(638)
Less: Purchases of property and equipment	(3,586)	(3,376)
Plus: IPO and public company readiness costs (1)	3,909	282
Plus: Taxes paid related to stock-based compensation equity awards (2)	1,653	—
Plus: Other (3)	4,220	—
Free cash flow	<u>\$ 12,746</u>	<u>\$ 13,976</u>

(1) IPO and public company readiness costs include costs associated with IPO readiness and establishment of our public company structure and processes, including consultant costs.

(2) Includes costs incurred related to taxes paid on equity transactions.

(3) Represents payment of one-time cash awards to Duolingo contributors under our non-employee volunteer program included within Sales and marketing expenses within our Consolidated Statement of Operations and Comprehensive Loss. See Note 2 to our Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K.

For the years ended December 31, 2021 and 2020, we generated \$12.7 million and \$14.0 million of free cash flow, respectively. The decrease in free cash flow was mainly attributable to the decrease in net cash provided by operating activities in addition to higher capitalized software development costs and capital expenditures.

Impact of COVID-19

To date, the COVID-19 pandemic has not had a significant, negative impact on our operations or financial performance. We believe that COVID-19 increased our operating metrics and financial metrics for a period of time in 2020 due, in part, to stay at home and other social distancing measures, most notably in the second quarter. The pandemic also increased adoption of the Duolingo English Test. Because this increase was driven in part by increased acceptance of the test, and because we believe that the vast majority of universities are unlikely to stop accepting the test when the pandemic ends, we do not expect the Duolingo English Test to revert to pre-pandemic levels.

The extent of the impact of the COVID-19 pandemic on our operational and financial performance, however, depends on certain developments, including ongoing social distancing measures, and future prevention and mitigation measures, as well as the potential for some of these measures to be reinstated in the event of repeat waves of the virus. Any such developments may have adverse impacts on global economic conditions and consumer confidence and spending, and could materially adversely affect demand, or subscribers' ability to pay, for our products and services. For additional information, see "Risk Factors—General Risk Factors—Our business and results of operations may be materially adversely affected by the recent COVID-19 outbreak or other similar outbreaks."

Seasonality

We experience some seasonality in both user growth and monetization on our platform. Historically, the number of users on our platform and the number of subscribers we have increase in January and then

moderate throughout the first quarter and second quarter back to our secular growth trend. In the third quarter, historically, we've seen the number of users on our platform increase as our product is used by students that return to school in certain geographies. Finally, in the latter part of December, as the new year approaches, we see an increase in usage as people make New Years resolutions, including resolutions to learn new things like languages. Monetization, through an increase in subscribers, also increases at the end of December and into January when we run a promotion tied to the New Year holiday.

Results of Operations

Comparison for the Years Ended December 31, 2021 and 2020

Revenue

We generate revenues primarily from the sale of subscriptions. The term-length of our subscription agreements are primarily monthly or annual. We began to roll out a family plan during the second half of 2021 and as of December 31, 2021 offer it exclusively as an annual subscription. We have historically had a six-month subscription plan but during the fourth quarter of 2020, we began to phase it out. We also generate revenue from advertising, the in-app sale of virtual goods, and our English assessment test, the Duolingo English Test.

Cost of Revenues

Cost of revenues predominantly consists of third-party payment processing fees charged by various distribution channels, and also includes hosting fees. To a much lesser extent, cost of revenues includes costs for contractors, wages and stock-based compensation for certain employees in the capacity of customer support, amortization of revenue generating capitalized software, and depreciation of certain property and equipment.

We intend to continue to invest additional resources in our infrastructure and our customer support and success organization to expand the capabilities of our platform and ensure that our users are realizing the full benefit of our products. The level, timing, and relative investment in these areas could affect our cost of revenues in the future.

Gross Profit and Gross Margin

Gross profit represents revenues less cost of revenues. Gross margin is gross profit expressed as a percentage of revenues. Our gross profit may fluctuate from period to period as our revenues fluctuate, and also as a result of the timing and amount of investments we make in items related to cost of revenues.

Operating Expenses

Our operating expenses consist of research and development, sales and marketing, and general and administrative expenses. Personnel costs are the most significant component of operating expenses and consist of salaries, benefits, and stock-based compensation expense. Operating expenses also include overhead costs for facilities, including depreciation expense.

Research and Development. We invest heavily in research and development in order to drive user engagement and customer satisfaction on our platform, which we believe helps to drive organic growth of new users. This, in turn, drives additional growth in, and better lifetime value of, our paid subscribers, as well as increased advertising revenue from impressions from our free users. Expenses are primarily made up of costs incurred for the development of new and improved products and features in our applications. Such expenses include compensation of engineers, designers, product managers, including stock-based

compensation, materials, travel and direct costs associated with the design and required testing of our platform. We expect engineers, designers, and product managers to represent a significant portion of our employees for the foreseeable future. We regularly test product improvements with our users. Many of these tests start by making small changes in the product that affect small numbers of users. As the tests evolve, they can require increasing investment and can impact more users. This process of constant testing is how we implement many of our new products and improvements to our platform and, in total, require large investments and involve substantial time and risks to develop and launch. Some of these products may not be well received or may take a long time for users to adopt. As a result, the benefits of our research and development investments may be difficult to forecast. We expect to continue to spend a significant portion of our revenues on research and development in the future.

Sales and Marketing. Sales and marketing expenses are expensed as incurred and consists primarily of brand advertising, marketing, digital and social media spend, field marketing, travel, trade show sponsorships and events, conferences and employee-related compensation, including stock-based compensation for personnel engaged in sales and marketing functions, and amortization of non-revenue generating capitalized software used to promote Duolingo. We expect our sales and marketing expenses will decline as a percentage of revenues over the long-term.

General and Administrative. General and administrative expenses primarily consist of employee-related compensation, including stock-based compensation, for management and administrative functions, including our finance and accounting, legal, and people teams. General and administrative expenses also include certain professional services fees, general corporate and director and officer insurance, our facilities costs, and other general overhead costs that support our operations. We expect to incur additional general and administrative expenses as a result of operating as a public company, including expenses to comply with the rules and regulations of the SEC and the Listing Rules of the Nasdaq Global Select Market, as well as higher expenses for corporate insurance, director and officer insurance, investor relations, and professional services. We expect that our general and administrative expenses will increase in absolute dollars as our business grows. However, we expect that our general and administrative expenses will remain steady or decrease as a percentage of our revenues as our revenues grow faster than these expenses over the long-term.

Other Income, Net of Other Expenses

Other income, net of other expenses consists primarily of foreign currency exchange gains and losses in addition to interest expense, partially offset by income earned on our money market funds included in cash and cash equivalents and on our marketable securities.

The following table sets forth our Consolidated Statement of Operations and Comprehensive Loss data, including year-over-year change, for the periods indicated:

<i>(in thousands)</i>	Year Ended December 31,		% Change
	2021	2020	
Revenues	\$ 250,772	\$ 161,696	55 %
Cost of revenues (1) (2)	69,186	45,987	50
Gross profit	181,586	115,709	57
Operating expenses:			
Research and development (1)	103,833	53,024	96
Sales and marketing (1) (2)	59,170	34,983	69
General and administrative (1)	78,590	43,713	80
Total operating expenses	241,593	131,720	83
Operating loss	(60,007)	(16,011)	275
Other income, net of other expenses	49	303	(84)
Loss before provision for income taxes	(59,958)	(15,708)	282
Provision for income taxes	177	68	160
Net loss and comprehensive loss	\$ (60,135)	\$ (15,776)	281 %

(1) Includes stock-based compensation expenses as follows:

<i>(In thousands)</i>	Year Ended December 31,	
	2021	2020
Cost of revenues	\$ 8	\$ 6
Research and development	9,298	2,773
Sales and marketing	881	348
General and administrative	30,617	13,904
Total	\$ 40,804	\$ 17,031

(2) Includes amortization of capitalized software as follows:

<i>(In thousands)</i>	Year Ended December 31,	
	2021	2020
Cost of revenues (a)	\$ —	\$ 86
Sales and marketing (a)	693	546
Total	\$ 693	\$ 632

(a) Amortization of capitalized software is recorded to cost of revenues and selling and marketing for revenue and non-revenue generating capitalized software, respectively.

The following table sets forth the components of our Consolidated Statement of Operations and Comprehensive Loss for each of the periods presented as a percentage of revenue.

	Year Ended December 31,	
	2021	2020
Revenues	100 %	100 %
Cost of revenues	28	28
Gross profit	72	72
Operating expenses:		
Research and development	41	33
Sales and marketing	24	22
General and administrative	31	27
Total operating expenses	96	82
Operating loss	(24)	(10)
Other income, net of other expenses	—	—
Loss before provision for income taxes	(24)	(10)
Provision for income taxes	—	—
Net loss and comprehensive loss	(24)%	(10)%

Revenues. Revenues increased \$89.1 million, or 55%, to \$250.8 million during the year ended December 31, 2021, from revenues of \$161.7 million during the year ended December 31, 2020. The main driver was an increase in subscription revenue of \$63.2 million, primarily due to an increase in the average number of paid subscribers during the year ended December 31, 2021 as compared to the year ended December 31, 2020. In addition, advertising revenues increased \$11.5 million. The increase was predominantly driven by the increase in average revenue per DAU for our ads and also by the increase in DAUs, which resulted in increased advertisements served, during the year ended December 31, 2021 as compared to the year ended December 31, 2020. Duolingo English Test revenue increased by \$9.5 million due to the growth in the number of tests taken, which was in turn driven by an increase in the number of institutions that accept our test and our marketing efforts. Finally, other revenue increased \$4.9 million, due to growth of in-app purchases.

The following table provides the changes in revenues by product type:

(in thousands)	Year Ended December 31,		Change	% Change
	2021	2020		
Subscription	\$ 180,698	\$ 117,501	\$ 63,197	54 %
Advertising	38,501	27,043	11,458	42 %
Duolingo English Test	24,658	15,155	9,503	63 %
Other	6,915	1,997	4,918	246 %
Total revenues	\$ 250,772	\$ 161,696	\$ 89,076	55 %

Cost of Revenues and Gross Margin. Total gross margin increased to 72.4% during the year ended December 31, 2021, from 71.6% during the year ended December 31, 2020. This increase is mainly due to increased subscription margins driven by reduced payment processing fees for subscription revenue due to improved retention, and increased advertising margins driven by an increase in average revenues per DAU for ads served to free users, which was partially offset by a decrease in Duolingo English Test margins driven by increased proctoring costs.

The following table provides the change in cost of revenues, along with related gross margins:

(in thousands)	Year Ended December 31,			
	2021		2020	
	Costs	Gross Margin	Costs	Gross Margin
Total cost of revenues	\$ 69,186	72.4 %	\$ 45,987	71.6 %

Operating Expenses

Research and Development. Research and development expense increased \$50.8 million, or 96%, to \$103.8 million during the year ended December 31, 2021 from \$53.0 million during the year ended December 31, 2020. The increase is mainly attributable to our growth in headcount leading to an increase in employee costs of \$41.4 million, of which \$3.3 million was related to the tender offer, \$1.3 million of it related to RSU expense recorded upon the IPO, in addition to \$4.2 million of it related to contractor costs.

Research and development continues to be our largest operating expense as we invest heavily in it in order to drive user engagement with and customer satisfaction in our platform, which we believe helps to drive organic growth in MAUs and DAUs; this in turn drives additional growth in, and better retention of, paid subscribers, as well as increased advertising opportunities with free users.

Sales and Marketing. Sales and marketing expense increased \$24.2 million, or 69%, to \$59.2 million during the year ended December 31, 2021 from \$35.0 million during the year ended December 31, 2020. While we incurred \$4.2 million of costs related to one-time cash awards we granted to Duolingo contributors under our non-employee volunteer program, which we refer to as contributor awards, and \$3.8 million of additional expenses related to employee costs, of which \$0.2 million was related to the tender offer and \$0.2 million of it related to RSU expense recorded upon the IPO, the majority of the increase was driven by spending on performance marketing where we found opportunities to grow quality DAUs at low cost and from brand marketing in priority markets such as Japan, India and Southeast Asia. See Note 2 to our Consolidated Financial Statements included elsewhere in this this Annual Report on Form 10-K for further discussion of the contributor awards.

General and Administrative. General and administrative expense increased \$34.9 million, or 80%, to \$78.6 million during the year ended December 31, 2021 from \$43.7 million during the year ended December 31, 2020. The main drivers of this increase were related to the following:

- Increased stock-based compensation costs of \$22.5 million which were recognized upon the IPO, offset by a decline of \$10.2 million related to the November 2020 secondary transaction which did not occur in 2021. Stock-based compensation costs recognized upon the IPO relate to the following:
 - \$5.6 million of costs related to the acceleration of founder stock options,
 - \$0.5 million of costs related to RSUs granted in prior periods, where the performance based vesting condition was satisfied upon the IPO, and
 - \$16.4 million of costs related to the performance-based RSUs issued to our founders which will continue through the life of the plan,
- Increased employee related costs of \$8.0 million due to the growth in headcount in addition to \$1.8 million of stock-based compensation costs related to the tender offer,
- Professional fees of \$5.9 million, of which \$3.1 million was related to IPO and public readiness costs and \$0.3 million was related to the tender offer,

- Increased costs incurred to expand to our facilities footprint of \$2.2 million,
- Increased insurance costs associated with being a public company of \$1.8 million, and
- Other increases of \$2.8 million, due to increased headcount, contractor expense, travel, and sales and VAT taxes.

Other Income, Net of Expenses

Other income, net of other expenses decreased \$0.3 million, during the year ended December 31, 2021 due to change in foreign currency rates, partially offset by the sale of a research and development tax credit.

Liquidity and Capital Resources

Since inception, we have financed operations primarily through revenues and the net proceeds we have received from the issuance of equity and debt securities. Prior to going public, we raised a total of \$183.3 million in capital financing, less issuance costs of \$0.7 million. Additionally, we received aggregate net proceeds of \$431.1 million from the IPO on July 30, 2021, after deducting underwriting discounts and fees of \$24.5 million. The Company paid an additional \$4.9 million related to offering costs.

As of December 31, 2021, we had \$553.9 million in cash and cash equivalents. Our cash and cash equivalents primarily consist of bank deposits and money market funds. Our marketable securities consist US government treasury and agency securities.

We believe that our existing cash and cash equivalents, and cash flow from operations will be sufficient to support working capital and capital expenditure requirements for at least the next 12 months. Our future capital requirements will depend on many factors, including our subscription growth rate and renewal activity, the timing of cash received from our payment processing platforms, the expansion of our sales and marketing activities, the introduction of new products and the enhancements to existing products, and the current uncertainty in the global markets resulting from the ongoing COVID-19 pandemic on our operations. We may be required to seek additional equity. If we are unable to raise additional capital or generate cash flows necessary to expand our operations and invest in continued innovation, we may not be able to compete successfully, which would harm our business, operations and financial condition.

A substantial source of our cash from operations comes from deferred revenue, which is included in the liabilities section of our Consolidated Balance Sheet. Deferred revenues consists of the unearned portion of customer billings, which is recognized as revenue in accordance with our revenue recognition policy. As of December 31, 2021, we had deferred revenues of \$98.3 million, which is recorded as a current liability and expected to be recognized as revenue in the next 12 months, provided all other revenue recognition criteria have been met.

The following table summarizes our cash flows for the periods presented:

<i>(in thousands)</i>	Year Ended December 31,	
	2021	2020
Net cash provided by operating activities	\$ 9,170	\$ 17,708
Net cash used for investing activities	(6,206)	(4,014)
Net cash provided by financing activities	430,468	46,953
Net increase in cash and cash equivalents	\$ 433,432	\$ 60,647

Operating Activities

Cash flows from operating activities can fluctuate significantly from period to period due to timing of payments and cash collections. Our largest source of operating cash is cash collection from sales of subscriptions to our users. Our primary uses of cash from operating activities are for personnel expenses, marketing expenses, hosting expenses and overhead expenses.

Cash provided by operating activities for the year ended December 31, 2021 decreased \$8.5 million, or 48%, to \$9.2 million. This decrease was due mainly to an increase in net loss for the periods presented, partially offset by increases from changes in working capital.

Investing Activities

Cash used in investing activities increased \$2.2 million, or 55%, to \$6.2 million for the year ended December 31, 2021, from investing activities for the year ended December 31, 2020 of \$4.0 million. The increase is due to increased costs from capitalization of software development and capital expenditures to purchase property and equipment to support office space and site operations.

Financing Activities

Cash provided by financing activities for the year ended December 31, 2021 was \$430.5 million, and was mainly driven by the net proceeds from the IPO of \$431.1 million, less offering expenses of \$4.9 million, and proceeds from exercises of stock options of \$12.5 million. These increases were partially offset by payments made as a result of the tender offer of \$8.2 million. Cash provided by financing activities for the year ended December 31, 2020 was \$47.0 million and primarily relates to the issuance of convertible preferred stock, net of issuance costs, of \$44.9 million, in addition to proceeds from exercises of stock options of \$2.0 million.

Contractual Obligations

The following table summarizes our contractual obligations and commitments as of December 31, 2021:

	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 years
Operating lease commitments (1)	\$ 44,391	\$ 5,153	\$ 11,196	\$ 6,279	\$ 21,763
Other commitments (2)	23,000	10,500	12,500	—	—
Total contractual obligations	\$ 67,391	\$ 15,653	\$ 23,696	\$ 6,279	\$ 21,763

(1) Consists of future non-cancelable minimum rental payments under operating lease obligations, excluding short-term leases. Refer to Note 6 to our Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K for additional information.

(2) Other commitments consist of hosting costs. We are committed to spend \$25.0 million over two years, with a minimum spend of \$10.5 million in the first year and \$12.5 million in the second year.

Off-Balance Sheet Obligations

We did not have during the periods presented, and we do not currently have any off-balance sheet financing arrangements or any relationships with unconsolidated entities or financial partnerships, including entities sometimes referred to as structured finance or special purpose entities, that were established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Critical Accounting Policies and Estimates

The preparation of financial statements in accordance with GAAP requires management to make estimates and assumptions about future events that affect amounts reported in our Consolidated Financial Statements and related notes, as well as the related disclosure of contingent assets and liabilities at the date of the financial statements. Management evaluates its accounting policies, estimates and judgments on an ongoing basis. Management bases its estimates and judgments on historical experience, current trends and various other factors that are believed to be relevant at the time Consolidated Financial Statements are prepared. Actual results may differ from these estimates under different assumptions and conditions. To the extent that there are differences between our estimates and actual results, our future financial statement presentation, financial condition, results of operations, and cash flows will be affected.

Management evaluated the development and selection of its critical accounting policies and estimates and believes that the following involve a higher degree of judgment, complexity or uncertainty and are most significant to reporting our results of operations and financial position, and are therefore discussed as critical. The following critical accounting policies reflect the significant estimates and judgments used in the preparation of our Consolidated Financial Statements.

Revenue Recognition

Nature of Revenue

We account for revenue contracts with customers by applying the five step model in Accounting Standards Codification (ASC) 606, *Revenue from Contracts with Customers*. Our predominant sources of revenue are time-based subscriptions, in-app advertising placement by third parties and the Duolingo English Test. Revenue is recognized upon transfer of control of promised goods or services to customers in an amount that reflects the consideration expected to be received in exchange for those goods or services. Revenue is recognized net of any taxes collected from customers, which are subsequently remitted to governmental authorities.

Revenue from time-based subscriptions includes a stand-ready obligation to provide hosting services that are consumed by the customer over the subscription period. Users can purchase Duolingo monthly or they can purchase a six-month or year-long subscription and pay for the subscription at the time of purchase. Under the year-long subscription, users can purchase a single plan or a family plan. The family plan includes up to six users to be on one subscription. Such payments are initially recorded to deferred revenue. The user has the ability to download limited content offline. However, as there is a significant level of integration and interdependency with the online functionality, we consider the service to be a single performance obligation for the online and offline content.

We enter into arrangements with advertising networks to monetize the in-app advertising inventory. Revenue from in-app advertising placement is recognized at a point in time when the advertisement is placed and is based upon the amount received.

Duolingo English Test revenue is generally recognized once the tests have gone through the proctoring process and a certification decision has been made. This process usually takes less than 48 hours after the test has been completed and uploaded. Customers have 21 days from the date of purchase to take the exam or their purchase will expire and revenue will be recognized. The vast majority of customers complete their exams prior to expiration. Sometimes organizations may purchase tests in bulk via coupons with a one year expiration date. We defer revenue from all tests that have not been proctored nor expired.

Our users have the option to purchase consumable in-app virtual goods. We recognize revenue over the period in which the user consumes the virtual good, which is generally within a month.

Principal Agent Considerations—We make our application available to be downloaded through third-party digital distribution service providers. Users who purchase subscriptions also pay through the respective app stores. We evaluate the purchases via third-party payment processors to determine whether its revenues should be reported gross or net of fees retained by the payment processor. We are the principal in the transaction with the end user as a result of controlling, hosting, and integrating the delivery of the virtual items to the end user. We record revenue gross as a principal and record fees paid to third-party payment processors as Cost of revenues.

Significant Judgment Around Revenue Arrangements with Multiple Deliverables

Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment. Our time-based subscriptions allow users the ability to download limited content offline. Significant judgment is required to determine whether this offline content should be considered distinct and accounted for separately, or not distinct and accounted for together with the online functionality provided and recognized over time. As there is a significant level of integration and interdependency with the online functionality, which is not the case with the offline functionality, we believe we have a single performance obligation for the online functionality and offline content.

Equity Based Compensation

We follow ASC 718, *Compensation-Stock Compensation*, to account for our equity based compensation.

Stock-based Compensation

ASC 718 requires all stock-based payments to employees, including grants of employee stock options, to be recognized in the income statement based on their fair values. We generally grant our option awards in a combination of service-based and performance-based. We measure the fair value of our options on the date of grant using the Black-Scholes pricing model which requires the use of several estimates, including the volatility of our share price, the expected life of the option, risk free interest rates and expected dividend yield. The use of different assumptions in the Black-Scholes pricing model would result in different amounts of equity based compensation expense. Furthermore, if different assumptions are used in future periods, our equity based compensation expense could be materially impacted in the future.

Prior to the completion of our IPO, we were not a publicly traded company and had only limited historical information on the price of our common stock as well as employees' option exercise behavior. As a result, we could not rely on historical experience alone to develop assumptions for our share price volatility. As such, our share price volatility was estimated with reference to a peer group of companies. Subsequent to the completion of our IPO, we transitioned to utilize the closing price of our publicly-traded stock to determine our volatility. We determined the expected life of our options using the simplified method described in the SEC Staff Accounting Bulletin Topic 14, *Share-Based Payment*, which defines the expected life as the average of the contractual term and the vesting period. The risk-free interest rate is based on the yield curve of a zero-coupon US Treasury bond on the date the option award was granted with a maturity equal to the expected term of the option award. We have not and do not expect to pay dividends on our common shares. See Note 9, "Stock Based Compensation," to our Consolidated Financial Statements appearing elsewhere in Annual Report on Form 10-K, for further information on equity based compensation.

Restricted Stock Units (RSUs)

We began to grant RSUs in November 2020. The fair value of RSUs is estimated based on the fair value of our common stock on the date of grant. Each RSU award vests based upon the satisfaction, during the term of the RSUs, of two requirements: length of service and a liquidity event defined as a change in control or a qualified IPO. The service-based vesting condition for the majority of these awards is satisfied over four years. The liquidity-based vesting condition is satisfied upon the occurrence of a qualifying liquidity event. We measure and recognize compensation expense for all stock-based awards based on the estimated fair value of the award. Prior to July 30, 2021, no stock-based compensation expense had been recognized for RSUs because the liquidity-based vesting condition had not been probable of being satisfied. Upon the IPO, the liquidity-based vesting condition was met and \$2,035 of stock-based compensation expense was recognized related to these awards.

Performance-based RSUs

In June 2021, we granted an aggregate of 1.8 million performance-based RSUs (“Founder Awards”) to our founders. The Founder Awards vest upon the satisfaction of both a service-based condition and a performance-based condition and generally are settled one year after vesting. The service-based condition is satisfied as to 25% of the Founder Awards on each anniversary of the completion of the IPO, subject to the continuous service of the founders through the applicable date. The performance-based condition will be satisfied with respect to each of ten equal tranches only upon the achievement of the specified stock-price hurdles for each such tranche over a period of ten years from the date of grant. The fair value of the Founder Awards is determined using a model based on multiple stock-price paths developed through the use of a Monte Carlo simulation that incorporates into the valuation the possibility that the stock-price hurdles may not be satisfied. The associated stock-based compensation is recorded over the derived service period, using the accelerated attribution method. If the stock-price hurdles are met sooner than the requisite service period, the stock-based compensation expense will be adjusted to prospectively recognize the remaining expense over the remaining derived service period. Provided that the founders continue to provide services to us, stock-based compensation expense is recognized over the derived service period, regardless of whether the stock-price hurdles are achieved.

Common Stock Valuations

Subsequent to our IPO in July 2021, the fair value of common stock is determined based upon the closing price of our Class A common stock immediately prior to the grant date.

Prior to our IPO, determining the fair value of our common stock requires complex and subjective judgment and estimates. There is inherent uncertainty in making these judgments and estimates. The absence of an active market for our common stock required our board of directors to estimate the fair value of the common stock for purpose of setting the exercise price of the options and estimating the fair value of the common stock at the time options were granted based on factors such as valuations of comparable companies, the status of our development and sales efforts, revenue growth, and additional objective and subjective factors relating to our business. We performed its analysis in accordance with applicable elements of the practice aid issued by the American Institute of Certified Public Accountants’ (“AICPA”) Practice Guide, Valuation of Privately Held Company Equity Securities Issued as Compensation; with this guidance, our board of directors exercised reasonable judgment and considered numerous and subjective factors to determine the best estimate of fair value of our common stock, including the following:

Company Specific Factors

- Actual and forecasted operating and financial performance based on management’s estimate;

- The development and maintenance of client relationships;
- Client and industry recognition;
- The hiring and retention of key personnel;
- The historical lack of a public market for our common stock;

General Economic Factors

- Industry trends and competitive environment;
- Trends in client and the at-large public spending, including client and public confidence;
- Overall economic indicators;
- The general economic outlook; and
- The common stock valuations have historically leveraged the historical appraisals we have received to value our common stock, utilizing an income approach.

Income Taxes

Deferred tax assets and liabilities are recognized principally for the expected tax consequences of temporary differences between the tax basis of assets and liabilities and their reported amounts, using currently enacted tax rates. The measurement of a deferred tax asset is reduced, if necessary, by a valuation allowance if it is more likely than not that some portion or all of the deferred tax asset will not be realized. Significant judgment is required in evaluating the need for and magnitude of appropriate valuation allowances. The realization of our deferred tax assets is dependent on generating future taxable income and the reversal of existing temporary differences. Changes in tax laws and assumptions with respect to future taxable income could result in adjustment to these allowances. As of December 31, 2021, we maintained a valuation allowance of approximately \$76,293 against net deferred tax assets related to both domestic and foreign net operating loss carryforwards, and state research and development credit carryovers as its future utilization remained uncertain.

In addition, we recognize a tax benefit for uncertain tax positions only if we believe it is more likely than not that the position will be upheld on audit based solely on the technical merits of the tax position. We evaluate uncertain tax positions after the consideration of all available information.

Recent Accounting Pronouncements

See Note 2, Basis of Presentation and Summary of Significant Accounting Policies in the notes to our Consolidated Financial Statements included in Part I, Item I of this Annual Report on Form 10-K for a discussion of Recent Accounting Pronouncements.

Emerging Growth Company Status

We are an “emerging growth company” as defined under the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards would otherwise apply to private companies. While we have not historically delayed the adoption of new or revised accounting standards until such time as those standards would apply to private companies, we have elected to take advantage of this extended transition period and, as a result, our operating results and financial statements in the future may not be comparable to the operating results and financial statements of companies who have adopted the new or revised accounting standards.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

As of December 31, 2021, we had \$510 million of cash equivalents invested in money market funds. Our cash and cash equivalents are held for working capital purposes in addition to future investments in our product. We do not enter into investments for trading or speculative purposes. Our investments are exposed to market risk due to a fluctuation in interest rates, which may affect our interest income and the fair market value of our investments. As of December 31, 2021, a hypothetical 10% relative change in interest rates would not have a material impact on our Consolidated Financial Statements.

Foreign Currency Exchange Risk

Our reporting currency and the functional currency of our wholly owned foreign subsidiaries is the US dollar. Certain of our payment providers translate our payments from local currency into USD at time of settlement, which means that during periods of a strengthening US dollar, our international receipts could be reduced. Our operating expenses are denominated in the currencies of the countries in which our operations are located, which are primarily in the United States and China. Our consolidated results of operations and cash flows are, therefore, subject to fluctuations due to changes in foreign currency exchange rates and may be adversely affected in the future due to changes in foreign exchange rates. In addition, as foreign currency exchange rates fluctuate, the translation of our international receipts into US dollars affects the period-over-period comparability of our operating results and can result in foreign currency exchange gains and losses. To date, we have not entered into any hedging arrangements with respect to foreign currency risk or other derivative financial instruments, although we may choose to do so in the future. A hypothetical 10% increase or decrease in the relative value of the US dollar to other currencies would not have a material effect on our operating results.

Item 8. Financial Statements

DUOLINGO, INC. AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Financial Statements as of December 31, 2021 and 2020 and for the two years then ended

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Duolingo, Inc. and subsidiaries (the "Company") as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' equity (deficit), and cash flows, for the years ended December 31, 2021 and 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, 2021 and 2020, and the results of its operations and its cash flows for the years ended December 31, 2021 and 2020, in conformity with accounting principles generally accepted in the United States of America.

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 Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

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.

/s/ Deloitte & Touche LLP

New York, New York

March 4, 2022

We have served as the Company's auditor since 2018.

DUOLINGO, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(Amounts in thousands, except par value amounts)

	December 31,	
	2021	2020
ASSETS		
Current assets		
Cash and cash equivalents	\$ 553,922	\$ 120,490
Accounts receivable	33,163	20,450
Deferred cost of revenues	24,219	13,585
Prepaid expenses and other current assets	7,967	3,855
Total current assets	619,271	158,380
Property and equipment, net	8,211	6,428
Capitalized software, net	4,566	2,296
Operating lease right-of-use assets	28,369	8,073
Other assets	894	562
Total assets	\$ 661,311	\$ 175,739
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities		
Accounts payable	\$ 7,818	\$ 2,196
Deferred revenues	98,267	54,792
Income tax payable	113	68
Accrued expenses and other current liabilities	12,933	8,634
Total current liabilities	119,131	65,690
Long-term obligation under operating leases	29,124	8,131
Total liabilities	148,255	73,821
Commitments and contingencies (Note 10)		
Convertible preferred stock, \$0.0001 par value, no shares issued and outstanding at December 31, 2021 and 19,074 shares issued and outstanding at December 31, 2020.	—	182,609
Stockholders' equity (deficit)		
Common stock, \$0.0001 par value; 2,000,000 shares of Class A common stock authorized and 16,645 issued and outstanding at December 31, 2021; 30,000 shares of Class B common stock authorized and 21,627 issued and outstanding at December 31, 2021; 42,800 authorized shares of common stock; 12,794 issued and outstanding at December 31, 2020.	4	1
Additional paid-in capital	683,966	30,087
Accumulated deficit	(170,914)	(110,779)
Total stockholders' equity (deficit)	513,056	(80,691)
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	\$ 661,311	\$ 175,739

See accompanying notes to the Consolidated Financial Statements.

DUOLINGO, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(Amounts in thousands, except per share amounts)

	Year Ended December 31,	
	2021	2020
Revenues	\$ 250,772	\$ 161,696
Cost of revenues	69,186	45,987
Gross profit	181,586	115,709
Operating expenses:		
Research and development	103,833	53,024
Sales and marketing	59,170	34,983
General and administrative	78,590	43,713
Total operating expenses	241,593	131,720
Loss from operations	(60,007)	(16,011)
Other income, net of other expenses	49	303
Loss before provision for income taxes	(59,958)	(15,708)
Provision for income taxes	177	68
Net loss and comprehensive loss	\$ (60,135)	\$ (15,776)
Net loss per share attributable to Class A and Class B common stockholders, basic	\$ (2.57)	\$ (1.24)
Net loss per share attributable to Class A and Class B common stockholders, diluted	\$ (2.57)	\$ (1.24)

See accompanying notes to the Consolidated Financial Statements.

DUOLINGO, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND
STOCKHOLDERS' EQUITY (DEFICIT)
(Amounts in thousands)

	Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total
	Shares	Amount	Shares	Amount			
BALANCE—Balance—January 1, 2020	18,247	\$ 137,686	12,406	\$ 1	\$ 11,026	\$ (95,003)	\$ (83,976)
Issuance of Series G and H convertible preferred stock, net of fees	827	44,923	—	—	—	—	—
Stock-based compensation	—	—	—	—	17,031	—	17,031
Stock options exercised	—	—	388	—	2,030	—	2,030
Net loss	—	—	—	—	—	(15,776)	(15,776)
BALANCE—December 31, 2020	19,074	\$ 182,609	12,794	\$ 1	\$ 30,087	\$ (110,779)	\$ (80,691)
Balance—January 1, 2021	19,074	\$ 182,609	12,794	\$ 1	\$ 30,087	\$ (110,779)	\$ (80,691)
Issuance of common stock in connection with the initial public offering, net of underwriting discounts and issuance costs	—	—	4,466	1	426,191	—	426,192
Conversion of redeemable convertible preferred stock to Class A common stock in connection with initial public offering	(19,074)	(182,609)	19,074	2	182,607	—	182,609
Stock-based compensation	—	—	—	—	40,804	—	40,804
Stock options exercised	—	—	1,882	—	12,480	—	12,480
Common stock repurchased and retired	—	—	(23)	—	(868)	—	(868)
Options repurchased	—	—	—	—	(7,335)	—	(7,335)
Release of restricted stock units	—	—	79	—	—	—	—
Net loss	—	—	—	—	—	(60,135)	(60,135)
BALANCE—December 31, 2021	—	\$ —	38,272	\$ 4	\$ 683,966	\$ (170,914)	\$ 513,056

See accompanying notes to the Consolidated Financial Statements.

DUOLINGO, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Amounts in thousands)

	Year Ended December 31,	
	2021	2020
Cash flows from operating activities:		
Net loss	\$ (60,135)	\$ (15,776)
Adjustments to reconcile net loss to net cash used for operating activities:		
Depreciation and amortization	2,726	2,256
Stock-based compensation	40,804	17,031
Changes in assets and liabilities:		
Deferred revenue	43,475	28,485
Accounts receivable	(12,713)	(10,445)
Deferred cost of revenues	(10,634)	(6,653)
Prepaid expenses and other current assets	(4,048)	(1,712)
Accounts payable	5,622	(1,615)
Accrued expenses and other current liabilities	3,708	6,213
Noncurrent assets and liabilities	365	(76)
Net cash provided by operating activities	<u>9,170</u>	<u>17,708</u>
Cash flows from investing activities:		
Capitalized software	(2,620)	(638)
Purchase of property and equipment	(3,586)	(3,376)
Net cash used for investing activities	<u>(6,206)</u>	<u>(4,014)</u>
Cash flows from financing activities:		
Issuance of common stock in connection with the initial public offering, net of underwriting discounts and issuance costs	426,191	—
Net proceeds from issuance of convertible preferred stock	—	44,923
Proceeds from exercise of stock options	12,480	2,030
Repurchases of stock options	(7,335)	—
Repurchase of common stock	(868)	—
Net cash provided by financing activities	<u>430,468</u>	<u>46,953</u>
Net increase in cash and cash equivalents	433,432	60,647
Cash and cash equivalents - Beginning of period	120,490	59,843
Cash and cash equivalents - End of period	<u>\$ 553,922</u>	<u>\$ 120,490</u>
Supplemental disclosure of cash flow information:		
Cash paid for interest	\$ —	\$ —
Cash paid for income taxes	\$ 132	\$ —
Supplemental disclosure of noncash operating activities:		
Implementation costs for cloud computing included in Current liabilities	\$ 64	\$ —
Supplemental disclosure of noncash investing activities:		
Capitalized software included in Current liabilities	\$ 342	\$ 500
Property and equipment included in Current liabilities	\$ 230	\$ —

See accompanying notes to the Consolidated Financial Statements.

DUOLINGO, INC. AND SUBSIDIARIES

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1. DESCRIPTION OF THE BUSINESS AND BASIS OF PRESENTATION

Duolingo, Inc. (the “Company” or “Duolingo”) was formed on August 18, 2011 and the Duolingo app was launched to the general public on June 19, 2012. The Company’s headquarters are located in Pittsburgh, Pennsylvania.

On July 30, 2021, Duolingo completed its Initial Public Offering (“IPO”) of 5,872 shares of its Class A common stock at a price to the public of \$102.00 per share, 4,466 of which were sold by the Company and 1,406 of which were sold by certain selling stockholders, which includes the exercise in full by the underwriters of their option to purchase from the Company an additional 766 shares of the Company’s Class A common stock. The gross proceeds to the Company from the IPO were \$455,532, before deducting underwriting discounts and commissions and offering expenses payable by the Company. The Company did not receive any proceeds from the sale of shares of Class A common stock in the offering by the selling stockholders. Immediately prior to the completion of the IPO, all convertible preferred stock outstanding, totaling approximately 19,074 shares, was automatically converted into an equivalent number of shares of Class B common stock on a one-to-one basis and their carrying value of \$182,609 was reclassified to additional paid-in capital within stockholders’ equity (deficit) . Additionally, on July 15, 2021, 6,930 shares held by our founders were exchanged from Class A common stock into Class B common stock.

Duolingo is a US-based language-learning website and mobile app, as well as a digital language proficiency assessment exam. The Company has a freemium business model: the app and the website are accessible free of charge, although Duolingo also offers a premium service, Duolingo Plus, for a subscription fee. As of the date of this filing, Duolingo offers courses in over 40 different languages, including Spanish, English, French, German, Italian, Portuguese, Japanese and Chinese. We have locations in the United States, China and Germany.

Principles of Consolidation—The Consolidated Financial Statements include the accounts of the Company and subsidiaries over which the Company has control. All intercompany transactions and balances have been eliminated.

Basis of Presentation—The accompanying Consolidated Financial Statements have been prepared in accordance with generally accepted accounting principles in the United States (“GAAP”) from the Company’s accounting records and reflect the consolidated financial position and results of operations for the years ended December 31, 2021 and 2020. Unless otherwise specified, all dollar amounts are referred to in thousands.

The Consolidated Financial Statements have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”).

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Under the JOBS Act, emerging growth companies also can delay adopting new or revised accounting standards until such time as those standards would otherwise apply to private companies. While we have not historically delayed the adoption of new or revised accounting standards until such time as those standards would apply to private companies, we have elected to take advantage of this extended transition period and, as a result, our operating results and financial statements in the future may not be comparable to the operating results and financial statements of companies who have adopted the new or revised accounting standards.

Accounting Principles—The financial statements and accompanying notes are prepared in accordance with GAAP.

Use of Estimates—The preparation of Consolidated Financial Statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the Consolidated Financial Statements and accompanying notes. Significant estimates and assumptions reflected in the Consolidated Financial Statements include, but are not limited to, useful lives of property and equipment, valuation of deferred tax assets and liabilities, stock-based compensation, common stock valuation, operating lease right-of-use assets and liabilities, capitalization of internally developed software and associated useful lives and contingent liabilities. Actual results may differ materially from such estimates. Management believes that the estimates, and judgments upon which they rely, are reasonable based upon information available to them at the time that these estimates and judgments are made. To the extent that there are material differences between these estimates and actual results, the Company's Consolidated Financial Statements will be affected.

Revenue Recognition—The Company has three predominant sources of revenue; time-based subscriptions, in-app advertising placement by third parties, and the Duolingo English Test. See Footnote 3 for further discussion.

Deferred Revenues—Revenue is recognized over the life of the subscription, or in the case of Duolingo English Test, revenue is recognized when the test is proctored. The Company classifies deferred revenue as a short-term liability on the consolidated balance sheets as the longest subscription plan is for twelve months, and Duolingo English Test purchases must be taken within 21 days.

Cost of Revenues—Cost of revenue predominantly consists of third-party payment processing fees charged by various distribution channel and hosting fees. To a much lesser extent, includes wages and stock-based compensation for certain employees in the capacity of customer support, amortization of revenue generating capitalized software, and depreciation of certain property and equipment.

Deferred Cost of Revenues—Deferred cost of revenue includes third-party payment processing fees amortized over the subscription terms in proportion to the revenue recognized. In situations where fees are charged for subscriptions that exceed one month, costs are deferred and recognized over the life of the subscription and are classified as a current asset. The Company classifies deferred cost of revenue as a short-term asset on the Company's consolidated balance sheets as the longest subscription plan is for twelve months.

Deferred Offering Costs—Deferred offering costs, which consist of direct incremental legal, accounting, and consulting fees relating to the IPO, are capitalized. Deferred offering costs related to underwriting discounts and commissions and offering expenses of \$4,865 were offset against IPO proceeds upon the consummation of the IPO.

Cash and Cash Equivalents—Cash consists primarily of cash on hand and bank deposits. Cash equivalents consist primarily of money market accounts with maturities of three months or less at the date of acquisition and are stated at cost, which approximates fair value. The Company maintains cash deposits with financial institutions that may exceed federally insured limits at times. The following table shows the breakout between cash and money market funds.

	December 31,	
	2021	2020
Cash	\$ 44,165	\$ 20,428
Money market funds	509,757	100,062
Total	<u>\$ 553,922</u>	<u>\$ 120,490</u>

The Money market funds are considered Level 1 financial assets. Level 1 financial assets use inputs that are the unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

Accounts Receivable—Accounts receivables are reported on the consolidated balance sheets at the outstanding principal amount adjusted for any allowance for credit losses and any charge offs. The Company provides an allowance for credit losses to reduce trade receivables to their estimated net realizable value equal to the amount that is expected to be collected. This allowance is estimated based on historical collection experience, the aging of receivables, specific current and expected future macro-economic and market conditions, and assessments of the current creditworthiness and economic status of customers. The Company considers a receivable delinquent if it is unpaid after the term of the related invoice has expired. Balances that are still outstanding after management has used reasonable collection efforts are written off. The Company reviews its allowance for credit losses on a quarterly basis. As of December 31, 2021 and 2020, the Company has not recorded a reserve given the Company's lack of historical write offs.

Property and Equipment—Property and equipment is stated at cost, less accumulated depreciation. Depreciation is computed on the straight-line method.

Asset Class	Estimated Useful Life
Furniture, fixtures and equipment	5 to 7 years
Leasehold improvements	4 to 6 years

Leasehold improvements are amortized over the lesser of the life of the lease or the estimated useful life of the leasehold improvements. Costs related to maintenance and repairs that do not extend the assets' useful life are expensed as incurred.

Capitalized software—The Company develops software for internal use and capitalizes the software development costs incurred during the application development stage. Costs incurred prior to and after the application development stage are charged to expense. When the software is ready for its intended use, capitalization ceases and such costs are amortized on a straight-line basis over the estimated life, which is generally three years. Relatively minor upgrades, enhancements and maintenance to the platform are expensed as incurred.

Income Taxes—The Company provides for income taxes in accordance with the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for future tax consequences attributable to differences between the carrying amounts of existing assets and liabilities for financial reporting and for income tax reporting. The deferred tax asset or liability represents the future tax return consequences of those difference, which will either be taxable or deductible when the assets and liabilities are recovered or settled. A valuation allowance is established for any deferred tax asset for which it is determined that it is more likely than not that some or all of the deferred tax assets will not be realized. The Company limits the deferred tax assets recognized related to certain officers' compensation to amounts that it estimates will be deductible in future periods based upon Internal Revenue Code Section 162(m).

The Company utilizes a two-step approach to recognizing and measuring uncertain tax positions accounted for in accordance with the asset and liability method. The first step is to evaluate the tax position for recognition by determining whether evidence indicates that it is more likely than not that a position will be sustained if examined by a taxing authority.

The second step is to measure the tax benefit as the largest amount that is 50% likely of being realized upon settlement with a tax authority. There were no amounts recorded at December 31, 2021 and 2020 related to uncertain tax positions.

Foreign Currency—The functional currency of the Company and its subsidiaries is the United States dollar. Transactions denominated in currencies other than the functional currency are translated into the functional currency at the exchange rates prevailing at the dates of the transaction. Monetary assets and liabilities denominated in foreign currencies are translated using the exchange rate prevailing at the balance sheet date. Non-monetary assets and liabilities are translated using the historical rate on the date of the transaction. All exchange gains or losses arising from translation of these foreign currency transactions are included in net loss for the year. The Company has not, to the date of these consolidated financial statements, entered into derivative instruments to offset the impact of foreign currency fluctuations.

Fair Value of Financial Instruments—The Company accounts for certain assets and liabilities at fair value in accordance with the accounting guidance applicable to fair value measurements and disclosures. The carrying values of cash, cash equivalents, accounts receivable, accounts payable, and accrued expenses are deemed to be reasonable estimates of their fair values because of their short-term nature.

Research and Development Costs—Research and development expenses are incurred as the Company maintains and enhances its software and evaluates and develops other potential applications. Such expenses include compensation of engineering, product design and testing personnel, including stock-based compensation, materials, travel and direct costs associated with the design and required testing of our platform and depreciation of certain property and equipment.

Sales and Marketing—Sales and marketing expenses are expensed as incurred and consists primarily of brand advertising, marketing, digital and social media spend, field marketing, travel, trade show sponsorships and events, conferences and other employee related compensation, including stock-based compensation for personnel engaged in sales and marketing functions, amortization of non-revenue generating capitalized software used to promote Duolingo, and depreciation of certain property and equipment. Advertising costs were approximately \$42,964 and \$27,352 for the years ended December 31, 2021 and 2020, respectively.

General and Administrative—General and administrative expense primarily consists of employee related compensation (including stock-based compensation) for management and administrative functions, including our finance and accounting, legal, and people teams. General and administrative expense also includes certain professional services fees, general corporate and director and officer insurance, facilities costs, and other general overhead costs that support our operations, and depreciation of certain property and equipment.

Contributors—On March 10, 2021, the Company announced that it was ending its non-employee volunteer program, which began in 2013 to build and improve language courses. As part of this change, those contributors who participated in the program became eligible to receive a one-time award, up to an aggregate amount of approximately \$4,220, including fees paid to process payments of approximately \$526. The Company accounted for this under Financial Accounting Standards Board (“FASB”) Accounting Standards Codifications (“ASC”) 958-720, *Not-For-Profit Entities - Other Expenses* and ASC 720-25, *Contributions Made*, based on the nature of this contribution, which is an unconditional promise. This

amount is included within Sales and marketing in the Consolidated Statement of Operations and Comprehensive Loss.

Concentration of Credit Risk—The Company's concentration of credit risk relates to financial institutions holding the Company's cash and cash equivalents and platforms with significant accounts receivable balances and revenue transactions.

The Company maintains cash deposits with financial institutions that may exceed federally insured limits at times. Management believes that the financial institutions that hold the Company's deposits are financially credit worthy and, accordingly, minimal credit risk exists with respect to those balances.

The majority of our revenue comes through our subscriptions and advertising streams and payments are made to Duolingo through service providers. The top three, Apple, Google, and Stripe, accounted for 51.1%, 27.9%, and 10.1% of total Accounts receivable as of December 31, 2021, respectively. The top three service providers, Apple, Google and Stripe, accounted for 47.8%, 28.9% and 13.8% of total Accounts receivable as of December 31, 2020, respectively.

Three service providers, Apple, Google, and Stripe, processed 50.5%, 29.0%, and 10.1% of total Revenues for the year ended December 31, 2021. Two services providers, Apple and Google, processed 51.3% and 26.9% of total Revenues for the year ended December 31, 2020.

Stock-Based Compensation—The Company accounts for equity-based compensation using the fair value method as set forth in the ASC 718, *Compensation—Stock Compensation*, which requires the measurement and recognition of compensation expense for all stock-based payment awards based on estimated fair values. This method requires companies to estimate the fair value of stock-based compensation on the date of grant using an option pricing model. The Company estimates the fair value of each equity-based payment award on the date of grant using the Black-Scholes pricing model.

The Black-Scholes model determines the fair value of equity-based payment awards based on the fair value of the underlying common stock on the date of grant and requires the use of estimates and assumptions, including the fair value of the Company's common stock, exercise price of the stock option, expected volatility, expected life, risk-free interest rate and dividend rate. The Company estimates the expected volatility of its stock options by taking the average historical volatility of a group of comparable publicly traded companies over a period equal to the expected life of the options; it is not practical for the Company to estimate its own volatility due to the lack of historical prices. The expected term of the options is determined in accordance with existing equity agreements as the underlying options are assumed to be exercised upon the passage of time. The risk-free interest rate is the estimated average interest rate based on US Treasury zero-coupon notes with terms consistent with the expected life of the awards. The expected dividend yield is zero as the Company does not anticipate paying any recurring cash dividends in the foreseeable future. The Company accounts for forfeitures as they occur.

Restricted Stock Units (RSUs)

The Company began to grant RSUs in November 2020. The fair value of RSUs is estimated based on the fair value of the Company's common stock on the date of grant. Each RSU award granted prior to the IPO vests based upon the satisfaction, during the term of the RSUs, of two requirements: length of service and a liquidity event defined as a change in control or a qualified IPO. The service-based vesting condition for the majority of these awards is satisfied over four years. The liquidity-based vesting condition is satisfied upon the occurrence of a qualifying liquidity event. The Company measures and recognizes compensation expense for all stock-based awards based on the estimated fair value of the award. Prior to July 30, 2021, no stock-based compensation expense had been recognized for RSUs because the liquidity-based vesting condition had not been probable of being satisfied. Upon the IPO, the liquidity-

based vesting condition was satisfied and \$2,035 of stock-based compensation expense was recognized related to these awards during the year ended December 31, 2021. Of that amount, \$1,332, \$210 and \$493 was included within Research and development, Sales and marketing and General and administrative, respectively, in the Consolidated Statement of Operations and Comprehensive Loss.

Performance-based RSUs

In June 2021, the Company granted 1,800 (one million eight-hundred thousand) performance-based RSUs to the Company's founders ("Founder Awards"). The Founder Awards are divided into ten equal tranches with each tranche becoming eligible to vest upon achievement of the specified stock-price hurdles. The Founder Awards vest upon the satisfaction of both a service-based condition and a performance-based condition and generally are settled one year after vesting. The service-based condition is satisfied as to 25% of the Founder Awards on each anniversary of the completion of the IPO, subject to the continuous service of the founders through the applicable date. The fair value of the Founder Awards is determined using a Monte Carlo simulation model. The associated stock-based compensation is recorded over the derived service period, using the accelerated attribution method. If the stock-price hurdles are met sooner than the requisite service period, the stock-based compensation expense will be adjusted to prospectively recognize the remaining expense over the remaining derived service period. Provided that the founders continue to provide services to us, stock-based compensation expense is recognized over the derived service period, regardless of whether the stock-price hurdles are achieved. The first and second tranches were met during the year ended December 31, 2021. The Company recognized \$16,463 of stock-based compensation expense related to these awards, which is included within General and administrative in the Consolidated Statement of Operations and Comprehensive Loss.

Contingencies—The Company records accruals for contingencies and legal proceedings expected to be incurred in connection with a loss contingency when it is probable that a liability has been incurred and the amount can be reasonably estimated.

If a loss contingency is not probable, but is reasonably possible, or is probable but cannot be estimated, the nature of the contingent liability, together with an estimate of the range of possible loss, would be disclosed.

Segment—The Company operates as a single operating segment. The chief operating decision maker of the Company is its Chief Executive Officer, who makes resource allocation decisions and assesses performance based on financial information presented on a consolidated basis, accompanied by disaggregated information of our revenue. Accordingly, the Company has determined that it has a single reportable segment and operating segment structure, and operates as one reporting unit.

Leases—The Company accounts for leases in accordance with ASC 842, *Leases*, which requires virtually all leases, other than leases that meet the definition of a short-term lease, to be recorded on the balance sheet with a right-of-use ("ROU") asset and corresponding lease liability. ROU assets are periodically reviewed for impairment whenever events or changes in circumstances arise. During the years ended December 31, 2021 and 2020, the Company incurred no impairment charges on ROU assets.

On the lease commencement date, each lease is classified as either finance or operating, depending on certain criteria. The Company determined that it only has operating leases as none of the criteria for finance lease classification were met. Operating lease expense is recognized on a straight-line basis on the Consolidated Statement of Operations and Comprehensive Loss in General and administrative expenses. On the Consolidated Statements of Changes in Cash Flows, payments for operating leases, including the interest component, are included in operating activities. As an accounting policy election, the Company has elected to not separate lease and non-lease components for all asset classes and made an

accounting policy election for short-term leases which does not require the capitalization of leases with terms of 12 months or less at lease commencement. The discount rate utilized in calculating the lease liability is the rate implicit in the lease, if known; otherwise, the incremental borrowing rate (“IBR”) for the expected lease term is used. The Company’s IBR approximates the rate the Company would have to pay, on a collateralized basis, to borrow an amount equal to the lease payments under similar terms.

Recently Adopted Accounting Pronouncements

In August 2018, the FASB issued Accounting Standard Update (“ASU”) No. 2018-15, *Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract (ASU 2018-15)*. ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The Company adopted this guidance on January 1, 2021 and it did not have a material impact on its Consolidated Financial Statements and related disclosures upon adoption.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, which simplifies the accounting for income taxes by removing certain exceptions and by clarifying and amending existing guidance in order to improve consistent application of and simplify GAAP for other areas of Topic 740. The guidance will be effective for the Company beginning after December 15, 2020. The Company adopted this guidance on January 1, 2021 and it did not have a material impact on its Consolidated Financial Statements and related disclosures upon adoption.

3. REVENUE

The Company has three predominant sources of revenues; time-based subscriptions, in-app advertising placement by third parties, and the Duolingo English Test. Revenue is recognized upon transfer of control of promised products or services to users in an amount that reflects the consideration the Company expects to receive in exchange for those services. The Company does not enter into contracts with a customer that contain multiple promises that result in multiple performance obligations. Revenue is recorded net of taxes assessed by a government authority that are both imposed on and concurrent with specific revenue transactions between us and our users.

Revenue from time-based subscriptions includes a stand-ready obligation to provide hosting services that are consumed by the customer over the subscription period. Users can purchase Duolingo monthly or they can purchase a six-month or year-long subscription and pay for the subscription at the time of purchase. Under the year-long subscription, users can also purchase a single plan or a family plan. The family plan includes up to six users to be on one subscription. Such payments are initially recorded to deferred revenue. The user has the ability to download limited content offline. However, as there is a significant level of integration and interdependency with the online functionality, the Company considers the service to be a single performance obligation for the online and offline content.

The Company enters into arrangements with advertising networks to monetize the in-app advertising inventory. Revenue from in-app advertising placement is recognized at a point in time when the advertisement is placed and is based upon the amount received.

Duolingo English Test revenue is generally recognized once the tests have gone through the proctoring process and a certification decision has been made. This process usually takes less than 48 hours after the test has been completed and uploaded. Customers have 21 days from the date of purchase to take the exam or their purchase will expire and revenue will be recognized. Virtually all customers complete their exams prior to expiration. Sometimes organizations may purchase tests in bulk via coupons with a

one year expiration date. The Company will defer revenue from all tests that haven't been proctored nor expired.

The Company's users have the option to purchase consumable in-app virtual goods. The Company recognizes revenue over the period in which the user consumes the virtual good, which is generally within a month.

Principal Agent Considerations—The Company makes its application available to be downloaded through third-party digital distribution service providers. Users who purchase subscriptions also pay through the respective app stores. The Company evaluates the purchases via third-party payment processors to determine whether its revenues should be reported gross or net of fees retained by the payment processor. The Company is the principal in the transaction with the end user as a result of controlling, hosting, and integrating the delivery of the virtual items to the end user. The Company records revenue gross as a principal and records fees paid to third-party payment processors as Cost of revenues.

Contract Balances—Deferred revenue mostly consists of payments we receive in advance of revenue recognition, and is mostly related to time-based subscriptions, which will be recognized into revenue over the course of the upcoming year (recognized over 12 months or less). Additionally, the Duolingo English Test has deferred revenue related to tests that have been purchased, but will not be recognized until the tests have been proctored.

Disaggregation of Revenue

In accordance with ASC 606, *Revenue from Contracts with Customers*, the Company disaggregates revenue from contracts with customers into source of revenue, which most closely depicts how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors.

Information regarding source of revenues:

	2021	2020
Over time	\$ 180,698	\$ 117,501
Point in time	70,074	44,195
Total revenue	<u>\$ 250,772</u>	<u>\$ 161,696</u>

Information regarding revenue by stream:

	2021	2020
Revenues:		
Subscription	\$ 180,698	\$ 117,501
Advertising	38,501	27,043
Duolingo English Test	24,658	15,155
Other (1)	6,915	1,997
Total revenues	<u>\$ 250,772</u>	<u>\$ 161,696</u>

(1) Other revenue is mainly comprised of in-app purchases of virtual goods.

Information regarding geography of revenues is based upon the location where the users are located or, in the case of the Duolingo English Test, where the tests are taken:

	2021	2020
United States	\$ 109,163	\$ 70,978
United Kingdom	25,163	15,245
Rest of World	116,446	75,473
Total	<u>\$ 250,772</u>	<u>\$ 161,696</u>

Customers located in the United States accounted for 44% of total revenues for both of the years ended December 31, 2021 and 2020, respectively, and customers located in the United Kingdom accounted for 10% and 9% for the years ended December 31, 2021 and 2020, respectively. No other country accounted for more than 10% of revenue in the periods presented.

Changes in deferred revenues were as follows:

	2021	2020
Beginning balance—January 1	\$ 54,792	\$ 26,307
Amount from beginning balance recognized into revenue	(54,792)	(26,307)
Recognition of deferred revenue	(139,371)	(91,193)
Deferral of revenue	237,638	145,985
Ending balance—December 31	<u>\$ 98,267</u>	<u>\$ 54,792</u>

4. PROPERTY and EQUIPMENT, net

Property and equipment consists of the following as of December 31, 2021 and 2020:

	2021	2020
Leasehold improvements	\$ 10,258	\$ 7,536
Furniture, fixtures and equipment	3,053	1,959
Total property and equipment	13,311	9,495
Less: accumulated depreciation	(5,100)	(3,067)
Total property and equipment, net	<u>\$ 8,211</u>	<u>\$ 6,428</u>

Depreciation expense was \$2,033 for the year ended December 31, 2021 and \$1,624 for the year ended December 31, 2020, and is predominately included within General and administrative, with nominal amounts in Cost of revenues, Research and development and Sales and marketing in the Company's Consolidated Statement of Operations and Comprehensive Loss.

5. CAPITALIZED SOFTWARE, net

Capitalized software consists of the following as of December 31, 2021 and 2020:

	2021	2020
Capitalized software	\$ 11,144	\$ 8,181
Less: accumulated amortization	(6,578)	(5,885)
Capitalized software, net	<u>\$ 4,566</u>	<u>\$ 2,296</u>

Amortization expense of \$693 for the year ended December 31, 2021, and \$632 for the year ended December 31, 2020 is recorded in the Company's Consolidated Statement of Operations and Comprehensive Loss, respectively.

Amortization expense is included within the following financial statement line items within the Company's Consolidated Statement of Operations and Comprehensive Loss:

	2021	2020
Cost of revenues	\$ —	\$ 86
Sales and marketing	693	546
Total	<u>\$ 693</u>	<u>\$ 632</u>

The Company reviews its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If the sum of the estimated undiscounted future cash flows expected to result from the use and eventual disposition of an asset is less than the carrying amount of the asset, an impairment loss is recognized. Measurement of an impairment loss is based on the fair value of the asset. No assets were impaired during the years ended December 31, 2021 and 2020.

6. LEASES

The Company has entered into various operating leases for its office space expiring between fiscal 2023 and 2035. Certain lease agreements contain an option for the Company to renew a lease for a term of up to five years. The Company considers these options, which may be elected at the Company's sole discretion, in determining the lease term on a lease-by-lease basis.

In November 2021, the Company signed a new lease for office space. The term of the newly executed lease is 162 months beginning on November 16, 2021 and expiring on April 30, 2035. The Company has the option to cancel the lease with at least twelve months prior written notice starting April 30, 2030. Additionally there are two five year extension options in the lease which the Company has not included in the lease term. The remaining payments related to this lease agreement as of December 31, 2021 are approximately \$24,261.

In December 2021, the Company signed an extension for existing office space. The term of the amended lease is 30 months beginning on December 23, 2021 and expiring on May 31, 2024. The remaining payments related to this lease agreement as of December 31, 2021 are approximately \$7,772.

The following represents the components of lease cost for the years ended December 31, 2021 and 2020 along with supplemental disclosures of cash flow information, lease term and discount rate:

	Year Ended December 31,	
	2021	2020
Operating lease cost	\$ 1,919	\$ 1,721
Short term lease cost	1,266	317
Variable lease cost	28	—
Total lease cost	<u>\$ 3,213</u>	<u>\$ 2,038</u>
Cash paid for amounts included in the measurement of lease liabilities	\$ 1,819	\$ —
Operating lease assets obtained in exchange for new lease liabilities	\$ 22,274	\$ —
Right-of-use assets disposed modifying operating lease liabilities	\$ 235	\$ —
Gain from termination of leases	\$ 31	\$ —
Weighted average remaining lease term	9 years	8 years, 11 months
Weighted average discount rate	5.77 %	6.70 %

The following table reconciles future minimum undiscounted rental commitments for operating leases to operating lease liabilities recorded on the Consolidated Balance Sheet as of December 31, 2021:

Fiscal year	
2022	\$ 5,153
2023	6,624
2024	4,572
2025	3,106
2026	3,173
Thereafter	21,763
Total undiscounted lease payments	<u>\$ 44,391</u>
Present value adjustment	<u>(11,931)</u>
Operating lease liabilities	<u>\$ 32,460</u>

Current lease liabilities of \$3,336 and \$1,111 are presented within Accrued expenses and other liabilities while non-current lease liabilities of \$29,124 and \$8,131 are presented within Long-term obligation under operating leases on the Consolidated Balance Sheets for the years ended December 31, 2021 and 2020 respectively.

7. INCOME TAXES

The Company has incurred \$177 provision for income taxes for the year ended December 31, 2021, of which \$97 was related to foreign income taxes and \$80 for state income taxes. For the year ended December 31, 2020, the Company incurred \$68 provision for income taxes, of which \$26 was related to foreign income taxes and \$42 for state income taxes.

The company has the following deferred tax assets (liabilities) as of December 31, 2021 and 2020:

	2021	2020
Net operating loss carryforwards	\$ 61,605	\$ 20,912
Equity compensation	1,881	1,063
Research and development credits	14,480	4,936
Lease liability	7,335	2,184
Other DTA	56	65
Sales tax / VAT reserve	277	544
Valuation allowance	(76,293)	(26,236)
Total deferred tax assets	9,341	3,468
ROU asset	(6,389)	(1,908)
Property and equipment	(1,894)	(1,014)
Capitalized software	(1,057)	(543)
Other DTL	(1)	(3)
Total deferred tax liabilities	(9,341)	(3,468)
Net deferred taxes	\$ —	\$ —

The Company has provided a valuation allowance for the net deferred tax asset as it is not more likely than not that the asset will be realized. The movement in valuation allowance of \$50,057 is primarily related to the generation of additional net operating losses and research and development credits.

The following table represents the activity in our valuation allowance for the years ended December 31, 2021 and 2020:

	Year Ended December 31,	
	2021	2020
Beginning balance—January 1	\$ (26,236)	\$ (23,851)
Valuation allowances established	(50,057)	(2,928)
Release of valuation allowances	—	543
Ending balance—December 31	\$ (76,293)	\$ (26,236)

The provision for income taxes differs from the amounts computed by applying the federal statutory rate as follows for the years ended December 31, 2021 and 2020:

	2021	2020
Federal statutory rate	21.0 %	21.0 %
State taxes	6.5	1.8
Sec. 162(m) limitation	(13.5)	—
Stock options	53.8	(18.4)
Other permanent adjustments	(0.5)	(1.8)
Research and development credit	15.9	10.2
Valuation allowance	(83.5)	(13.2)
Effective income tax rate	(0.3)%	(0.4)%

The 2021 and 2020 effective tax rate is less than the statutory rate primarily as a result of the valuation allowance for net deferred tax assets.

The Company has approximately \$257,115 in federal net operating loss carryforwards and approximately \$98,131 in state net operating loss carryforwards. Certain of these loss carryforwards have an indefinite

life and other amounts are available to offset future taxable income through 2041. The Company has approximately \$14,480 in federal general business credits that are available to offset future taxable income through 2041. The Company has analyzed the impact of Internal Revenue Code ("IRC") Sections 382 and 383 on these tax attributes and has determined that no prior ownership changes have occurred which would limit the Company's ability to utilize the NOLs and research and development tax credits.

The Company's tax years through the 2021 tax year remain subject to examination by federal and state tax authorities.

No uncertain tax benefits have been recorded in 2021 and 2020, respectively.

8. CONVERTIBLE PREFERRED STOCK

Immediately prior to the completion of the IPO on July 30, 2021, all convertible preferred stock outstanding, totaling approximately 19,074 shares, was automatically converted into an equivalent number of shares of Class B common stock on a one-to-one basis and their carrying value of \$182,609 was reclassified to additional paid-in capital within stockholders' equity (deficit).

The following table summarizes the convertible preferred stock outstanding immediately prior to the conversion into common stock and as of December 31, 2020:

Series	Shares		Per share price at issuance	Aggregate liquidation preference	Funds received	Fees incurred	Carrying value of convertible preferred stock
	Authorized	Outstanding					
A	3,865	3,865	\$ 0.85	\$ 3,300	\$ 3,300	\$ 52	\$ 3,248
B	6,298	6,298	2.38	15,000	15,000	60	14,940
C	2,948	2,948	6.78	20,000	20,000	112	19,888
D	3,154	3,154	14.27	45,000	45,000	146	44,853
E	1,224	1,224	20.43	25,000	25,000	92	24,909
F	758	758	39.57	30,000	30,000	153	29,848
G	241	241	41.38	10,000	10,000	24	9,976
H	586	586	59.77	35,000	35,000	52	34,947
Total	19,074	19,074		\$ 183,300	\$ 183,300	\$ 691	\$ 182,609

9. STOCK-BASED COMPENSATION

Prior to the IPO, the Company granted options to purchase shares of the Company's common stock and restricted stock units in respect of shares of the Company's common stock to employees, directors and consultants under the Company's 2011 Equity Incentive Plan. In July 2021, Duolingo adopted the 2021 Incentive Award Plan (2021 Plan) and the 2021 Employee Stock Purchase Plan ("ESPP"), each of which became effective on July 26, 2021 in connection with the IPO. An aggregate of 7,946 shares and 1,119 shares of Class A common stock were made available for future issuance under the 2021 Plan and ESPP, respectively. The 2021 Plan permits the granting of incentive stock options and nonqualified stock options. The Company's stock options vest based on terms in the stock option agreements and generally vest over four years and have a term of ten years subject to the continuous service to the Company by the optionee. Incentive stock options may be granted at an exercise price of not less than 100% of the estimated fair value of the underlying Class A common stock at the date of the grant.

Stock option activity as of December 31, 2021 is set forth below:

	Number of options	Weighted-average exercise price	Weighted-average remaining contractual life (years)	Aggregate intrinsic value
Options outstanding at January 1, 2021	8,365	\$ 10.68	7.47	\$ 230,596
Granted	72	52.80		
Exercised	(1,882)	6.63		
Repurchased	(220)	4.81		
Forfeited and expired	(80)	14.75		
Options outstanding at December 31, 2021	6,255	\$ 12.53	6.92	\$ 585,339
Options exercisable at December 31, 2021	4,420	\$ 10.61	6.41	\$ 422,076

The total intrinsic value of options exercised was approximately \$194,513 and \$6,058 for the years ended December 31, 2021 and 2020, respectively. The total weighted-average grant date fair value of options granted was \$24.61 and \$9.77 and for the years ended December 31, 2021 and 2020, respectively.

The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following assumptions:

	2021	2020
Risk-free interest rate	1.04 – 1.14%	0.32 – 0.68%
Expected life	5.90 years	6.01 years
Expected volatility	48.90 – 49.12%	45.50 – 49.38%
Dividend yield	—%	—%
Fair value of common stock	\$38.08 – \$52.80	\$14.42 – \$38.08

The risk-free interest rate is based on the US treasury yield curve in effect as of the grant date. When establishing the expected life assumptions, the Company annually reviews historical employee exercise behavior of option grants and other economic data impacting the period the stock options are expected to remain outstanding. Expected volatility is determined using a benchmark index of similar public companies. The Company based the assumed dividend yield on its expectation of not paying dividends in the foreseeable future. Because the Company's common stock was not yet publicly traded at the time the options were granted, the Company estimated the fair value of common stock. The Board estimated the fair value of the common stock at the time awards were granted based on factors such as valuations of comparable companies, the status of the Company's development and sales efforts, revenue growth, and additional objective and subjective factors relating to the Company's business.

RSU activity as of December 31, 2021 is set forth below:

	Restricted stock units	Weighted-average grant date fair value per share
Outstanding at January 1, 2021	34	\$ 38.08
Granted	787	77.41
Released	(79)	59.76
Forfeited	(12)	99.06
Outstanding at December 31, 2021	730	\$ 77.09

Prior to July 30, 2021, no stock-based compensation expense had been recognized for RSUs because the liquidity-based vesting condition had not been probable of being satisfied. Upon the IPO, the liquidity-

based vesting condition was met and \$2,035 of stock-based compensation expense was recognized related to these awards.

As of December 31, 2021, there was approximately \$13,428 of unrecognized compensation cost related to stock options granted under the plan with a weighted-average period of approximately two years. The amount of unrecognized compensation expense for RSUs as of December 31, 2021 was \$52,478 with a weighted average remaining contractual life of three years, for a total unrecognized compensation expense of \$65,906.

There were 7,754 shares available for grant at December 31, 2021.

Performance-based RSUs

In June 2021, the Company granted an aggregate of 1,800 performance-based RSUs (the "Founder Awards") to the Company's founders. The Founder Awards vest upon the satisfaction of both a service-based condition and a performance-based condition and generally are settled 1 year after vesting. The service-based condition is satisfied as to 25% of the Founder Awards on each anniversary of the completion of the IPO, subject to the continuous service of the founders through the applicable date. The performance-based condition will be satisfied with respect to each of 10 equal tranches only if the trailing 60-calendar day volume-weighted average closing trading price of the Company's Class A common stock reaches certain stock-price hurdles for each such tranche, as set forth below, over a period of 10 years from the date of grant.

If stock-price hurdles fail to be reached prior to the tenth anniversary of the date of grant, no portion of the Founder Awards will vest. Further, any RSUs associated with stock-prices hurdle not achieved by the tenth anniversary of the date of grant will terminate and be cancelled for no additional consideration to the founders. The stock-price hurdles and number of RSUs eligible to vest will be adjusted to reflect any stock splits, stock dividends, combinations, reorganizations, reclassifications, or similar events under the 2021 Plan. The Founder Awards will be settled in shares of the Company's Class B common stock.

Tranche	Company Stock Price Hurdle	Number of RSUs Eligible to Vest
1	\$ 127.50	90
2	\$ 153.00	90
3	\$ 178.50	90
4	\$ 204.00	180
5	\$ 255.00	180
6	\$ 306.00	180
7	\$ 357.00	180
8	\$ 408.00	180
9	\$ 612.00	270
10	\$ 816.00	360

The Company estimated the grant date fair value of the Founder Awards using a model based on multiple stock-price paths developed through the use of a Monte Carlo simulation that incorporates into the valuation the possibility that the stock-price hurdles may not be satisfied. The weighted-average grant date fair value of the Founder Awards was estimated to be \$61.56 per share using the below inputs.

Input	Assumption
Valuation Date	June 28, 2021
Risk-free interest rate	1.48%
Expected life	9.98
Expected volatility	51.67%
Dividend yield	0.00%
Fair value of common stock	\$95.00

The Company estimates that it will recognize total stock-based compensation expense of approximately \$110,817 over the derived service period of each of the ten separate tranches which is between 3.58 – 5.92 years. If the stock-price hurdles are met sooner than the requisite service period, the stock-based compensation expense will be adjusted to prospectively recognize the remaining expense over the remaining derived service period. Provided that the founders continue to provide services to the Company, stock-based compensation expense is recognized over the derived service period, regardless of whether the stock-price hurdles are achieved. The first and second tranches were met during the year ended December 31, 2021. The Company recognized \$16,463 of stock-based compensation expense related to these awards, which is included within General and administrative in the Consolidated Statement of Operations and Comprehensive Loss.

In February 2021, the Company initiated a tender offer which allowed employees to sell up to 10% of their vested options or shares back to the Company at selling price of \$59.77, which was above fair market value of \$38.08. The Company paid \$13,479 and incurred \$5,275 of additional compensation expense related to this tender representing the difference between the aggregate selling price and fair market value of the options and shares sold, and a \$7,335 decrease to Additional paid-in capital. As a result of this tender, 220 options were put back into the option pool and 23 shares were retired with an \$868 decrease to Additional paid-in capital.

Upon the IPO, vesting of stock option grants to certain executive officers were accelerated, which resulted in an additional \$5,574 of compensation expense during the year ended December 31, 2021. This is included within General and administrative in the Consolidated Statement of Operations and Comprehensive Loss.

Total stock-based compensation expense was \$40,804 for the year ended December 31, 2021, and \$17,031 for the year ended December 31, 2020.

Stock based compensation expense is included in the Consolidated Statement of Operations and Comprehensive Loss as shown in the following table:

	Year Ended December 31,	
	2021	2020
Cost of revenues	\$ 8	\$ 6
Research and development	9,298	2,773
Sales and marketing	881	348
General and administrative	30,617	13,904
Total	\$ 40,804	\$ 17,031

Nominal amounts of stock based compensation expense is capitalized into capitalized software for the years ended December 31, 2021 and 2020.

10. COMMITMENTS AND CONTINGENCIES

Legal Proceedings— From time to time, the Company may become involved in various legal proceedings in the ordinary course of its business and may be subject to third-party infringement claims. The outcome of any such claims or proceedings, regardless of the merits, is inherently uncertain. The Company is not currently party to any material legal proceedings

Sales and use and value-added tax ("VAT")— The Company determined that it was required to pay sales and use and VAT taxes in various jurisdictions. The Company is in the process of filing voluntary disclosure agreements with certain jurisdictions and remitting the estimated taxes. If these jurisdictions determine that additional amounts are necessary, the Company will be required to pay accordingly.

Related Parties— The Company has determined that there were no transactions with related parties as of or during the years ended December 31, 2021 and 2020.

11. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses and other current liabilities consisted of the following:

	2021	2020
Sales and VAT tax accrual	\$ 2,319	\$ 2,301
Obligations under current leases	3,336	1,111
Employee-related benefits	2,075	889
Marketing related accruals	1,078	1,513
Other	4,125	2,820
Total	<u>\$ 12,933</u>	<u>\$ 8,634</u>

12. EMPLOYEE BENEFIT PLAN

The Company sponsors a profit sharing plan with a 401(k) feature, the Duolingo Retirement Plan, (the "Plan") for eligible employees. The current Plan, effective January 1, 2021, provides for Company safe harbor matching contributions of 100% of the first 4% of the employees' elective deferrals and 50% of the next 2%, with vesting starting upon the first day of employment. The prior Plan provided for Company safe harbor matching contributions of 100% of the first 3% of the employees' elective deferrals and 50% of the next 2%, with vesting starting upon the first day of employment. The Company also has the option to make discretionary matching or profit sharing contributions. The Company made safe harbor matching contributions of approximately \$3,438 for the year ended December 31, 2021, and \$1,796 for the year ended December 31, 2020. The Company did not make any discretionary matching or profit sharing contributions during the years ended December 31, 2021 or 2020.

13. EARNINGS PER SHARE

Basic and diluted net loss per share attributable to common stockholders is presented in conformity with the two-class method required for participating securities. Prior to the automatic conversion of all of its convertible preferred stock outstanding into Class B common stock upon the IPO, the Company considered all series of its convertible preferred stock to be participating securities.

Under the two-class method, the net loss attributable to common stockholders is not allocated to the convertible preferred stock as the holders of the convertible preferred stock do not have a contractual obligation to share in the Company's losses. Basic net loss per share attributable to common stockholders is calculated by dividing the net loss by the weighted-average number of shares of common stock outstanding during the period, less shares subject to repurchase. The diluted net loss per share

attributable to common stockholders is calculated by giving effect to all potential dilutive common stock equivalents outstanding for the period.

<i>(In thousands, except per share data)</i>	Year Ended December 31,	
	2021	2020
Numerator:		
Net loss attributable to Class A and Class B common shareholders	\$ (60,135)	\$ (15,776)
Denominator:		
Weighted-average shares in computing net loss per share attributable to Class A and Class B common stockholders, basic and diluted	23,433	12,735
Basic loss per common share	<u>\$ (2.57)</u>	<u>\$ (1.24)</u>
Diluted loss per common share	<u>\$ (2.57)</u>	<u>\$ (1.24)</u>

The rights, including the liquidation and dividend rights, of the holders of Class A and Class B common stock are identical, except with respect to voting and conversion. Each share of Class A common stock is entitled to one vote per share and each share of Class B common stock is entitled to 20 votes per share. Each share of Class B common stock is convertible into a share of Class A common stock voluntarily at any time by the holder, and automatically upon certain events. The Class A common stock has no conversion rights. As the liquidation and dividend rights are identical for Class A and Class B common stock, the undistributed earnings are allocated on a proportional basis and the resulting net loss per share attributable to common stockholders will, therefore, be the same for both Class A and Class B common stock on an individual or combined basis.

Since the Company was in a net loss position for the years ended December 31, 2021 and 2020, there is no difference between the number of shares used to calculate basic and diluted loss per share. The potential shares of common stock that were excluded from the computation of diluted net loss per share attributable to common stockholders for the period presented because including them would have been antidilutive are as follows:

	Year Ended December 31,	
	2021	2020
Convertible preferred stock	—	19,074
Founder awards where performance has been met	180	—
Vested RSUs	4	—
Stock options	4,420	4,191
Total	<u>4,604</u>	<u>23,265</u>

Founder awards where performance has not been met of 1,620 are excluded from the above table because the stock-price hurdles for those awards had not been met as of December 31, 2021.

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 principal executive officer and principal financial officer, conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and

procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were effective as of the end of the period covered by this Annual Report on Form 10-K to provide reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and (ii) accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Material Weakness in Internal Control over Financial Reporting

As disclosed in the “Risk Factors” section of the Final Prospectus, we previously identified a material weakness with our internal control over financial reporting as we had not designed or maintained an effective control environment and associated control activities to meet our accounting and reporting requirements. Specifically we did not have a sufficient complement of personnel with an appropriate degree of internal controls and accounting knowledge, we did not have a sufficiently documented risk assessment process to identify and analyze risks of misstatement due to error and/or fraud and in certain cases we did not have appropriate reviews over journal entries and third party reported information to allow for reliable and timely financial reporting. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company’s annual or interim financial statements will not be prevented or detected on a timely basis.

Remediation of Previously Identified Material Weakness

During 2020, we established a remediation plan to address the previously reported material weakness in internal control over financial reporting described in the “Risk Factors” section of the Final Prospectus and we have been actively engaged in the implementation of remediation efforts to address the material weakness. Specific remedial actions undertaken by management included, without limitation:

- Hired a complement of accounting and finance resources;
- Implementation of timely review controls over certain account reconciliations;
- Implementation of journal entry approval workflow within our key financial system; and
- Implementation of review controls over third party reported information

We have completed the execution of our remediation plan and the applicable measures have been implemented for a sufficient period of time. As a result, as of December 31, 2021, management concluded that the Company had remediated the previously reported material weakness in the internal control over financial reporting by implementing controls that operated effectively for a reasonable period of time.

Changes in Internal Control Over Financial Reporting

Except as otherwise described herein, there were no changes in our internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, during the quarter ended December 31, 2021 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management’s Annual Report on Internal Control Over Financial Reporting

This Annual Report on Form 10-K does not include a report of management's assessment regarding our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) or an attestation report of our independent registered accounting firm due to a transition period established by rules of the SEC for newly public companies. Additionally, our independent registered accounting firm will not be required to opine on the effectiveness of our internal control over financial reporting pursuant to Section 404 until we are no longer an "emerging growth company" as defined in the JOBS Act.

Limitations on Effectiveness of Controls and Procedures

Our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their desired objectives. Management does not expect, however, that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all error and fraud. Any control system, no matter how well designed and operated, is based upon certain assumptions and can provide only reasonable, not absolute, assurance that its objectives will be met. Further, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within the company have been detected.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item is incorporated by reference to the Company's 2022 Proxy Statement (the "2022 Proxy Statement") to be filed with the SEC within 120 days after December 31, 2021.

Item 11. Executive Compensation

The information required by this Item is incorporated by reference to the 2022 Proxy Statement to be filed with the SEC within 120 days after December 31, 2021.

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 the 2022 Proxy Statement to be filed with the SEC within 120 days after December 31, 2021.

Item 13. Certain Relationships and Related Party Transactions

The information required by this Item is incorporated by reference to the 2022 Proxy Statement to be filed with the SEC within 120 days after December 31, 2021.

Item 14. Principal Accountant Fees and Services

The information required by this Item is incorporated by reference to the 2022 Proxy Statement to be filed with the SEC within 120 days after December 31, 2021.

Item 15. Exhibits, Financial Statement Schedules

(a) Documents filed as part of this Annual Report on Form 10-K:

(1) Consolidated Financial Statements

Our Consolidated Financial Statements are listed in the “Index to Consolidated Financial Statements” under Part II, Item 8 of this Annual Report on Form 10-K.

(2) Financial Statement Schedules

All financial statement schedules have been omitted because they are not applicable, not material or the required information is shown in Part II, Item 8 of this Annual Report on Form 10-K.

(3) Exhibits

The documents listed in the Exhibit Index of this Annual Report on Form 10-K are incorporated by reference or are filed with this Annual Report on Form 10-K, in each case as indicated herein (numbered in accordance with Item 601 of Regulation S-K).

Item 16. Form 10-K Summary

None.

Exhibit Index

Exhibit Number	Exhibit Description	Incorporated by Reference			Exhibit	Filed Herewith
		Form	File No.	Date		
3.1	Amended and Restated Certificate of Incorporation, as currently in effect	8-K	001-40653	7/30/2021	3.1	
3.2	Bylaws, as currently in effect	8-K	001-40653	7/30/2021	3.2	
4.1	Form of Class A Common Stock Certificate	S-1/A	333-257483	7/19/2021	4.2	
4.2	Amended and Restated Investors' Rights Agreement, dated November 6, 2020, by and among the Registrant and the investors listed therein	S-1/A	333-257483	7/19/2021	4.3	
4.3	Description of Registered Securities					X
10.1(a)#	2021 Incentive Award Plan	S-1/A	333-257483	7/19/2021	10.3(a)	
10.1(b)#	Form of Stock Option Grant Notice and Stock Option Agreement under the 2021 Incentive Award Plan	S-1/A	333-257483	7/19/2021	10.3(b)	
10.1(c)#	Form of Restricted Stock Unit Award Grant Notice and Restricted Stock Unit Award Agreement under the 2021 Incentive Award Plan	S-1/A	333-257483	7/19/2021	10.3(c)	
10.2(a)#	2011 Equity Incentive Plan, as amended	S-1/A	333-257483	7/19/2021	10.2(a)	
10.2(b)#	Form of Stock Option Grant Notice and Stock Option Agreement under 2011 Equity Incentive Plan, as amended	S-1/A	333-257483	7/19/2021	10.2(b)	
10.2(c)#	Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement under 2011 Equity Incentive Plan, as amended	S-1/A	333-257483	7/19/2021	10.2(c)	
10.3#	Non-Employee Director Compensation Program	S-1/A	333-257483	7/19/2021	10.11	
10.4#	Form of Indemnification Agreement for Directors and Officers	S-1/A	333-257483	7/19/2021	10.12	

10.5	Lease by and between 5704 Penn Office, LLC and Duolingo Inc. dated November 16, 2021									X
10.6#	Form of Change in Control and Severance Agreement	S-1/A	333-257483	7/19/2021				10.14		
10.7(a)	Office Lease Agreement, dated November 18, 2015, by and between Alpha 4, L.P. and the Registrant	S-1/A	333-257483	7/19/2021				10.1(a)		
10.7(b)	Amendment to Office Lease Agreement, dated June 16, 2016, by and between Alpha 4, L.P. and the Registrant	S-1/A	333-257483	7/19/2021				10.1(b)		
10.7(c)	Second Amendment to Office Lease Agreement, dated October 16, 2017, by and between Alpha 4, L.P. and the Registrant	S-1/A	333-257483	7/19/2021				10.1(c)		
10.7(d)	Third Amendment to Office Lease Agreement, dated December 31, 2017, by and between Alpha 4, L.P. and the Registrant	S-1/A	333-257483	7/19/2021				10.1(d)		
10.7(e)	Fourth Amendment to Office Lease Agreement, dated August 10, 2018, by and between Alpha 4, L.P. and the Registrant	S-1/A	333-257483	7/19/2021				10.1(e)		
10.7(f)	Fifth Amendment to Office Lease Agreement, dated October 22, 2018, by and between Alpha 4, L.P. and the Registrant	S-1/A	333-257483	7/19/2021				10.1(f)		
10.7(g)	Sixth Amendment to Office Lease Agreement, dated November 8, 2019, by and between Alpha 4, L.P. and the Registrant	S-1/A	333-257483	7/19/2021				10.1(g)		
10.8#	Offer Letter by and between the Registrant and Luis von Ahn	S-1/A	333-257483	7/19/2021				10.5		
10.9#	Offer Letter by and between the Registrant and Severin Hacker	S-1/A	333-257483	7/19/2021				10.6		
10.10#	Offer Letter by and between the Registrant and Matthew Skaruppa	S-1/A	333-257483	7/19/2021				10.7		
10.11#	Offer Letter by and between the Registrant and Robert Meese	S-1/A	333-257483	7/19/2021				10.8		
10.12#	Offer Letter by and between the Registrant and Natalie Glance	S-1/A	333-257483	7/19/2021				10.9		
10.13#	Offer Letter by and between the Registrant and Stephen Chen	S-1/A	333-257483	7/19/2021				10.10		
10.14#	Employee Stock Purchase Plan	S-1/A	333-257483	7/19/2021				10.4		
21.1	List of Subsidiaries									X
23.1	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm									X
31.1	Certification of Principal Executive Officer pursuant to Exchange Act Rule 13a-14(a)									X
31.2	Certification of Principal Financial Officer pursuant to Exchange Act Rule 13a-14(a)									X
32.1*	Certification of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350									X
101.INS	Inline XBRL Instance Document - the Instance Document does not appear in the interactive data file because its XBRL tags are embedded within the Inline XBRL document									
101.SCH	Inline XBRL Taxonomy Extension Schema Document									

101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

*The certification attached as Exhibit 32.1 that accompanies this Annual Report on Form 10-K pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, is not deemed "filed" by the Registrant for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

Indicates management contract or compensatory plan.

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Luis von Ahn</u> Luis von Ahn	Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	March 4, 2022
<u>/s/ Matthew Skaruppa</u> Matthew Skaruppa	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	March 4, 2022
<u>/s/ Amy Bohutinsky</u> Amy Bohutinsky	Director	March 4, 2022
<u>/s/ Sara Clemens</u> Sara Clemens	Director	March 4, 2022
<u>/s/ Bing Gordon</u> Bing Gordon	Director	March 4, 2022
<u>/s/ Severin Hacker</u> Severin Hacker	Chief Technology Officer and Director	March 4, 2022
<u>/s/ John Lilly</u> John Lilly	Director	March 4, 2022
<u>/s/ Gillian Munson</u> Gillian Munson	Director	March 4, 2022
<u>/s/ Jim Shelton</u> Jim Shelton	Director	March 4, 2022
<u>/s/ Laela Sturdy</u> Laela Sturdy	Director	March 4, 2022

DESCRIPTION OF SECURITIES

The following is a description of the capital stock of Duolingo, Inc. (the "Company," "we," "us," and "our") and the material provisions of our amended and restated certificate of incorporation and our amended and restated bylaws, each as amended from time to time, the amended and restated investors' rights agreement to which we and certain of our stockholders are parties, and of the Delaware General Corporation Law. Because the following is only a summary, it does not contain all of the information that may be important to you. For a complete description, you should refer to the full text of our amended and restated certificate of incorporation, amended and restated bylaws, and amended and restated investors' rights agreement.

Authorized Capital Stock

We have two classes of authorized common stock: Class A and Class B common stock.

Our amended and restated certificate of incorporation authorizes capital stock consisting of:

- 2,000,000,000 shares of Class A common stock, \$0.0001 par value per share;
- 30,000,000 shares of Class B common stock, \$0.0001 par value per share; and
- 20,000,000 shares of preferred stock, \$0.0001 par value per share.

Voting Rights

Each holder of our Class A common stock is entitled to one (1) vote per share, and each holder of our Class B common stock is entitled to twenty (20) votes per share, on all matters submitted to a vote of the stockholders. The holders of our Class A and Class B common stock will generally vote together as a single class on all matters submitted to a vote of our stockholders, unless otherwise required by Delaware law or our amended and restated certificate of incorporation. Delaware law could require either holders of our Class A common stock or Class B common stock to vote separately as a single class in the following circumstances:

- if we were to seek to amend our amended and restated certificate of incorporation to increase or decrease the par value of a class of our capital stock, then that class would be required to vote separately to approve the proposed amendment; and
- if we were to seek to amend our amended and restated certificate of incorporation in a manner that alters or changes the powers, preferences, or special rights of a class of our capital stock in a manner that affected its holders adversely, then that class would be required to vote separately to approve the proposed amendment.

Our amended and restated certificate of incorporation does not provide for cumulative voting for the election of directors.

Dividend Rights

The holders of our Class A and Class B common stock are entitled to receive dividends as may be declared from time to time by our board of directors out of legally available funds.

Conversion

Each outstanding share of Class B common stock is convertible at any time at the option of the holder into one share of Class A common stock. In addition, each share of Class B common stock will convert automatically into one share of Class A common stock upon any transfer, whether or not for value, except for certain permitted transfers further described in our amended and restated certificate of incorporation, including estate planning or charitable transfers where exclusive voting control with respect to the shares of Class B common stock is retained by the transferring holder, transfers from one Founder to the other Founder, and transfers to affiliates or certain other related entities of the transferring holder. We refer to Luis von Ahn and Severin Hacker, together, as our Founders and each, a Founder.

All outstanding shares of our Class B common stock will convert automatically into shares of our Class A common stock at 5:00 p.m. New York City time on a date fixed by our board of directors that is not less than 60 days nor more than 180 days following the date the aggregate number of shares of our Class B common stock then outstanding ceases to represent at least 5% of the aggregate number of all shares of

our common stock then outstanding. In addition, each share of Class B common stock held by our Founders (or any of such Founders' permitted transferees, other than the other Founder) will automatically convert into one share of Class A common stock at 5:00 p.m. New York City time on a date fixed by our board of directors that is not less than 60 nor more than 180 days following the death or disability of such Founder.

Once converted into Class A common stock, the Class B common stock may not be reissued.

Liquidation

In the event of our liquidation, dissolution, or winding up of the Company, holders of our Class A and Class B common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities of the Corporation of whatever kind available for distribution to stockholders.

Rights and Preferences

Holders of our Class A and Class B common stock have no preemptive, conversion (except as noted above), or subscription rights, and there are no redemption or sinking fund provisions applicable to our Class A common stock or Class B common stock.

Fully Paid and Non-Assessable

All of the outstanding shares of our Class A and Class B common stock are fully paid and non-assessable.

Preferred Stock

Under the terms of our amended and restated certificate of incorporation, our board of directors is authorized, without further action by our stockholders, to issue up to 20,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges, and restrictions thereof. These rights, preferences, and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms, and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of our common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring, or preventing a change in control of our company or other corporate action. No shares of our preferred stock are issued and outstanding and we have no present plan to issue any shares of preferred stock.

Registration Rights

We and certain holders of our Class A common stock and convertible preferred stock are parties to the investors' rights agreement, pursuant to which certain holders of our Class B common stock and Class A common stock are entitled to rights with respect to the registration of their shares under the Securities Act of 1933, as amended (the "Securities Act"). The registration rights set forth in the investors' rights agreement terminate upon the earlier to occur of (1) three years following the completion of our initial public offering, and (2) with respect to any particular stockholder, such earlier time after the completion of our initial public offering, at which (x) such stockholder can sell all of its Registrable Securities, as defined in the investors' rights agreement, in compliance with Rule 144(b)(1), or (y) such stockholder holds 1% or less of our outstanding common stock and such stockholder is able to sell all of its Registrable Securities, without restriction pursuant to Rule 144 under the Securities Act during any three-month period. We will pay the registration expenses (other than any underwriting discounts and selling commissions) of the holders of the shares registered for sale pursuant to the registrations described below, including the reasonable fees of one counsel for the selling holders not to exceed \$25,000. However, we will not be required to bear the expenses in connection with the exercise of the demand registration rights of a registration if the request is subsequently withdrawn at the request of the selling stockholders holding a majority of securities to be registered, subject to specified exceptions. In an underwritten public offering, the underwriters have the right, subject to specified conditions, to limit the number of shares such holders may include.

Demand Registration Rights

Certain holders of our Class B common stock are entitled to certain demand registration rights. At any time beginning six months after the completion of our initial public offering, the holders of at least 55% of these shares then outstanding can request that we register the offer and sale of their shares on a

registration statement on Form S-1 if we are eligible to file a registration statement on Form S-1 so long as the request covers at least that number of shares with an anticipated offering price, net of underwriting discounts and commissions, of at least \$15.0 million. We are obligated to effect only two such registrations. If we determine that it would materially impede, delay or interfere with any material pending or proposed transaction or require disclosure of material non-public information that that, if disclosed, would be materially harmful to the company and its stockholders, we have the right to defer such registration, not more than once in any 12-month period, for a period of up to 90 days.

S-3 Registration Rights

Certain holders of our Class B common stock are entitled to certain Form S-3 registration rights. The holders of Registrable Securities may make a written request that we register the offer and sale of their shares on a registration statement on Form S-3 if we are eligible to file a registration statement on Form S-3 so long as the request covers at least that number of shares with an anticipated offering price (net of underwriting discounts and commissions) of at least \$5.0 million. These stockholders may make an unlimited number of requests for registration on Form S-3; however, we will not be required to effect a registration on Form S-3 if we have effected two such registrations within the 12-month period preceding the date of the request. In addition, if we determine that it would be materially detrimental to us and our stockholders to effect such a registration, we have the right to defer such registration, not more than once in any 12-month period, for a period of up to 90 days. Lastly, we will not be required to effect a demand registration on Form S-3 if we give notice to such stockholders of our bona fide intention to file a registration statement within 120 days of receipt of a request for registration by such stockholders.

Piggyback Registration Rights

If we propose to register the offer and sale of our common stock under the Securities Act, in connection with the public offering of such common stock, certain holders of our Class B common stock will be entitled to certain "piggyback" registration rights allowing the holders to include their shares in such registration, subject to certain marketing and other limitations, which, in the case of an underwritten offering, will be in the sole discretion of the underwriters. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to (1) a demand registration described above, (2) a registration related solely to a company stock plan, (3) a registration relating to a corporate reorganization or transaction under Rule 145 of the Securities Act, (4) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the public offering of our common stock, or (5) a registration in which the only common stock being registered is common stock issuable upon the conversion of debt securities that are also being registered, the holders of these shares are entitled to notice of the registration and have the right, subject to certain limitations, to include their shares in the registration.

Anti-Takeover Provisions

The provisions of the Delaware General Corporation Law, our amended and restated certificate of incorporation, and our amended and restated bylaws, which are summarized below, may have the effect of delaying, deferring, or discouraging another person from acquiring control of our company. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Delaware Law

We are governed by the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A "business combination" includes mergers, asset sales, or other transactions resulting in a financial benefit to the stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years did own, 15% or more of the corporation's outstanding voting stock. These provisions may have the effect of delaying, deferring, or preventing a change in our control.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaw Provisions

Our amended and restated certificate of incorporation and our amended and restated bylaws contain provisions that could make the following actions and transactions, among others, more difficult: acquisition of us by means of a tender offer; acquisition of us by means of a proxy contest or otherwise; or

removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions that might result in a premium over the market price for our shares.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Dual Class Stock

Our amended and restated certificate of incorporation provides for a dual class common stock structure, which provides our Founders and certain other investors with significant influence over all matters requiring stockholder approval, including the election of directors and significant corporate transactions, such as a merger or other sale of our company or its assets.

Undesignated Preferred Stock

The ability to authorize undesignated preferred stock make it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to effect a change in control of our company. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of our company.

Special Stockholder Meetings

Our amended and restated bylaws provide that a special meeting of stockholders may only be called by an officer of our company pursuant to a resolution adopted by a majority of our board of directors then in office or the chairperson of our board of directors.

Stockholder Action by Written Consent

Our amended and restated certificate of incorporation provides that from and after the date holders of our Class B common stock represent less than 50% of the voting power of the outstanding shares of our capital stock, no action may be taken by our stockholders by written consent.

Requirements for Advance Notification of Stockholder Proposals and Nominations

Our amended and restated bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Classified Board; Election and Removal of Directors; Filling Vacancies

Our board of directors is divided into three classes, divided as nearly as equal in number as possible. The directors in each class will serve for a three-year term, one class being elected each year by our stockholders, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the voting power of the then outstanding capital stock will be able to elect all of our directors. Our amended and certificate of incorporation provide for the removal of any of our directors only for cause and require a stockholder vote by the holders of a majority of the voting power of the then outstanding capital stock. For more information on the classified board, see the section titled "Management-Classified Board of Directors." Furthermore, our board of directors has the exclusive right to set the size of the board of directors, and any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of the board, may only be filled by a resolution of the board of directors unless the board of directors determines that such vacancies will be filled by the stockholders. This system of electing and removing directors and filling vacancies may discourage a third party from making a tender offer or otherwise attempting to obtain control of us because it generally makes it more difficult for stockholders to replace a majority of the directors.

Forum Selection

Our amended and restated certificate of incorporation and amended and restated bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be 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 claim of breach of fiduciary duty owed by any of our directors, officers or stockholders to us or to our stockholders; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws (as either may be amended from time to time); or any action asserting a claim against us that is governed by the internal affairs doctrine. As a result, any action brought by any of our stockholders with regard to any of these matters will need to be filed in the Court of Chancery of the State of Delaware and cannot be filed in any other jurisdiction; provided that, the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Exchange Act of 1934, as amended (the "Exchange Act") or any other claim for which the federal courts have exclusive jurisdiction; and provided further that, if and only if the Court of Chancery of the State of Delaware dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in the State of Delaware. Our amended and restated certificate of incorporation and amended and restated bylaws also provide that the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action against us or any of our directors, officers, employees, or agents and arising under the Securities Act. Nothing in our amended and restated certificate of incorporation and amended and restated bylaws preclude stockholders that assert claims under the Exchange Act from bringing such claims in state or federal court, subject to applicable law.

If any action the subject matter of which is within the scope described above is filed in a court other than a court located within the State of Delaware (a Foreign Action), in the name of any stockholder, such stockholder shall be deemed to have consented to the personal jurisdiction of the state and federal courts located within the State of Delaware in connection with any action brought in any such court to enforce the applicable provisions of our amended and restated certificate of incorporation and amended and restated bylaws and having service of process made upon such stockholder in any such action by service upon such stockholder's counsel in the Foreign Action as agent for such stockholder. Although our amended and restated certificate of incorporation and amended and restated bylaws contain the choice of forum provision described above, it is possible that a court could find that such a provision is inapplicable for a particular claim or action or that such provision is unenforceable.

This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, other employees, or stockholders, which may discourage lawsuits with respect to such claims, although our stockholders will not be deemed to have waived our compliance with federal securities laws and the rules and regulations thereunder.

Amendment of Charter Provisions

Any amendment of the above provisions in our amended and restated certificate of incorporation would require approval by holders of at least 66 2/3% of the voting power of all of the then outstanding capital stock entitled to vote generally in the election of directors, voting together as a single class. In addition, the affirmative vote of holders of at least 80% of the shares of Class B common stock outstanding at the time of such vote, voting as a separate series, is required to amend or repeal, or adopt any provision of our amended and restated certificate of incorporation relating to the rights and preferences of our common stock.

Limitation on Liability and Indemnification of Officers and Directors

Our amended and restated certificate of incorporation and our amended and restated bylaws, among other things, limit our directors' liability, and provide that we may indemnify our directors and officers to the fullest extent permitted under the Delaware General Corporation Law. As authorized by the Delaware General Corporation Law, our amended and restated certificate of incorporation provides that to the fullest extent permitted by Delaware law, our directors will not be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as directors, except for liability for any:

- transaction from which the director derives an improper personal benefit;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or unlawful redemption or repurchase of shares in violation of Delaware law; or
- breach of the director's duty of loyalty to the corporation or its stockholders.

These limitations of liability do not apply to liabilities arising under federal securities laws and do not affect the availability of equitable remedies such as injunctive relief or rescission.

Our amended and restated bylaws provide that we will, in certain situations, indemnify our directors and officers and may indemnify other employees and other agents, to the fullest extent permitted by law. Any indemnified person is also entitled, subject to certain limitations, to advancement, direct payment, or reimbursement of reasonable expenses (including attorneys' fees and disbursements) in advance of the final disposition of the proceeding.

The Delaware General Corporation Law provides that to the extent a present or former director or officer of the corporation has been successful on the merits or otherwise in defense of any generally indemnifiable action, suit, or proceeding, that such person shall be indemnified by the corporation against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with such action, suit, or proceeding. For any acts or omissions occurring after December 31, 2020, the officers referenced in the immediately preceding sentence could be more limited as a matter of Delaware law.

In addition, we have entered, and intend to continue to enter, into separate indemnification agreements with our directors and officers. Subject to certain exceptions, these indemnification agreements, among other things, require us to indemnify such directors and officers to the fullest extent permitted by Delaware law for certain expenses and against certain liabilities, including, among other things, attorneys' fees, judgments, fines, and settlement amounts actually and reasonably paid or incurred by such director or officer in any action, suit, or proceeding arising out of their services as a director or officer, or any other company or enterprise to which the person provides services at our request. Subject to certain exceptions, these indemnification agreements also require us to advance certain expenses (including attorneys' fees and disbursements) actually and reasonably paid or incurred by such director and officer in advance of the final disposition of the action, suit or proceeding.

Transfer Agent and Registrar

The transfer agent and registrar for our Class A and Class B common stock is American Stock Transfer & Trust Company, LLC.

Listing

Our Class A common stock is listed on the Nasdaq Global Select Market under the symbol "DUOL."

LEASE

BY AND BETWEEN

5704 PENN OFFICE, LLC

“LANDLORD” AND

DUOLINGO, INC.

“TENANT” OF

141 S. St. Clair Street 3rd Floor
Pittsburgh, PA 15206

Dated: November 16, 2021

DUOLINGO, INC. – LIBERTY EAST – 141 S. ST. CLAIR STREET LEASE INDEX

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1. **BASIC LEASE PROVISIONS.**

The words and phrases defined below are hereby incorporated into and made a part of this Lease and are hereinafter referred to as the "Basic Lease Provisions".

- A. "Additional Rent" means all money, other than Fixed Basic Rent, payable by Tenant to Landlord under the Lease, including, but not limited to, the monies payable by Tenant to Landlord pursuant to Exhibit B of this Lease.
- B. "Base Year" means the calendar year 2023.
- C. "Building" means that certain building located at 141 S. St. Clair St., Pittsburgh, PA 15206 (which is under construction as of the date of this Lease).
- D. "Building Holidays" means New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and such other holidays as may be included by Landlord from time to time.
- E. "Building Hours" means Monday through Friday 8:00 a.m. to 6:00 p.m. and on those Saturdays from 8:00 a.m. to 1:00 p.m., but excluding Building Holidays. Regardless of Building hours, Tenant is permitted access to the Building and the Premises 24/7 every day.
- F. "Building Manager" or "Manager" shall mean LG Realty Advisors, Inc.
- G. "Common Areas" means all areas and facilities outside the Premises and within the exterior boundary line of the Property that are designated by Landlord from time to time for the general non-exclusive use of Landlord, Tenant, the other Building tenants, and their respective employees, suppliers, customers, and invitees, including, but not limited to, common entrances, lobbies, corridors, stairwells, elevators, fitness facilities, including showers and locker rooms, conference facilities, parking areas, loading and unloading areas, roadways and sidewalks. Landlord may also designate other land and improvements outside the boundaries of the Property to be a part of the Common Areas, provided that such other land and improvements have a reasonable and functional relationship to the Property. Landlord shall have the right to change the area, level, location, and arrangement of the Common Areas so long as in so doing Landlord does not materially and adversely affect ingress to and egress from the Building or the Premises and does not increase Tenant's Proportionate Share or any amounts required to be paid by Tenant to Landlord under the Lease.
- H. Intentionally omitted.
- I. "Calendar Year" means January 1 through December 31 of each year.
- J. "Commencement Date" means the later to occur of the following two dates: (1) the date on which Landlord delivers the Premises to Tenant with Landlord's Work having been substantially completed, or (2) May 1, 2022.
- K. "Demised Premises" or "Premises" means and are agreed and deemed to be 38,258 rentable square feet consisting of all the office space on the third (3rd) floor of the Office Unit as shown on Exhibit A to this Lease, which includes an allocable share of the Common Areas.

- L. "Expiration Date" means 11:59 p.m. on the last day of the one-hundred fifty-sixth (156) month after the Commencement Date.
- M. "Effective Date" means November 16, 2021.
- N. "Fixed Basic Rent" means the following:

<u>Lease Period</u> <u>(Months)</u>	<u>Fixed Basic Rent</u> <u>per/RSF</u>	<u>Monthly Fixed</u> <u>Basic Rent</u>	<u>Annual Fixed</u> <u>Basic Rent</u>
1 to 12*	\$46.57	\$148,466.17	\$1,781,594.00
13 to 24	\$46.57	\$148,466.17	\$1,781,594.00
25 to 36	\$47.50	\$151,435.49	\$1,817,225.88
37 to 48	\$48.45	\$154,464.20	\$1,853,570.40
49 to 60	\$49.42	\$157,553.48	\$1,890,641.81
61 to 72	\$50.41	\$160,705.55	\$1,928,454.64
73 to 84	\$51.41	\$163,918.64	\$1,967,023.73
85 to 96	\$52.44	\$167,197.02	\$2,006,364.21
97 to 108	\$53.49	\$170,540.96	\$2,046,491.49
109 to 120	\$54.56	\$173,951.78	\$2,087,421.32
121 to 132	\$55.65	\$177,430.81	\$2,129,169.75
133 to 144	\$56.77	\$180,979.43	\$2,171,753.14
144 to 156	\$57.90	\$184,599.02	\$2,215,188.21

*Notwithstanding anything to the contrary contained herein, provided that Tenant is not then in default under the Lease beyond any applicable cure periods, the Fixed Basic Rent shall be partially abated during the first through the twelfth months of the Term (the "Abatement Period") in a total amount of \$1,415,546.00 (the "Abatement Amount"). The Abatement Amount shall be applied equally on a monthly pro-rata basis during the Abatement Period, such that the monthly Fixed Basic Rent during the Abatement Period shall be \$30,504.00 (the "Abatement Fixed Basic Rent"). Tenant shall remain obligated to pay all Additional Rent accruing during the Abatement Period. If Tenant is in default beyond any applicable cure periods of its obligations hereunder during the Abatement Period, Fixed Basic Rent shall accrue at a rate in accordance with the schedule above.

- O. "HVAC After Hour Charge" shall be Landlord's actual costs to provide after-hours HVAC service to the Demised Premises (only applicable if Tenant is requesting HVAC services after Building Hours), subject to Section 4.2 of the Lease. The HVAC After Hour Charge is subject to increase from time to time to reflect the actual increase in utility costs from the utility provider for providing such after-hours HVAC service.
- P. "Legal Requirements" means all present and future laws and ordinances of federal, state, municipal and county governments, and rules, regulations, orders and directives of departments, subdivisions, bureaus, agencies and offices of such governments, or any other governmental, public or quasi- public authorities having jurisdiction over the Building, and the directions of any public officer pursuant to law.

Q. "Notice Address" shall mean the following:

If to Tenant: Duolingo Inc.
141 S. St. Clair Street Pittsburgh, PA 15206

With a copy to: K&L Gates LLP
210 Sixth Avenue
Pittsburgh, PA 15222 Attn: David Lehman

If to Landlord: 5704 Penn Office, LLC
c/o LG Realty Advisors, Inc. 535 Smithfield Street, Suite
900
Pittsburgh, PA 15222

With a copy to: Goldberg, Kamin & Garvin, LLP
1806 Frick Building
437 Grant Street
Pittsburgh, PA 15219 Attn: Ryan M. Wotus, Esq.

- R. "Parking Spaces" means a total of sixty-five (65) unreserved parking spaces located on Level 3 through Level 6 of the Office Unit parking garage. During the Term, sixty-five (65) access cards shall be made available for Tenant's exclusive use for access to the parking garage of the Office Unit.
- S. "Permitted Use" means general office use, and purposes incident and ancillary thereto, consistent with a class A office building and for no other purposes.
- T. "Property" means the Office Unit, the Common Areas, the land upon which the same are located, along with all improvements thereon, including all parking facilities located at 151 S. St. Clair Street.
- U. "Office Unit" means that certain condominium unit identified as the "Office Unit" in the Declaration of Condominium of Liberty East, A Condominium, as recorded in the Allegheny County Department of Real Estate in Deed Book Volume, page , including all improvement made therein.
- V. "State" means the Commonwealth of Pennsylvania.
- W. "Tenant's Proportionate Share" means and is agreed and deemed to be 15.16% for the purposes of this Lease.
- X. "Term" means the period of time beginning on the Commencement Date and ending on the Expiration Date, unless extended as provided herein.
- Y. "Brokers":
"Landlord's Broker": "Tenant's Broker":
CBRE, Inc. None

2. LEASING AGREEMENT.

2.1. Grant of Lease. Landlord, in consideration of the Fixed Basic Rent and any Additional Rent to be paid and the other covenants and agreements to be performed by Tenant pursuant to the provisions hereof, does hereby lease, demise and let unto Tenant the Premises located in the Office Unit commencing as of the Commencement Date and ending on the Expiration Date, unless sooner terminated as herein provided, together with certain rights to the Common Areas.

2.2. Term of Lease. The Term of this Lease and Tenant's obligation to pay Fixed Basic Rent and Additional Rent hereunder shall commence on the Commencement Date. The Term of this Lease shall expire on the Expiration Date, unless earlier terminated as provided herein. After the commencement of the Term, Tenant and Landlord shall promptly execute a commencement date agreement setting forth the actual Commencement Date and Expiration Date in the form attached hereto as Exhibit E. The failure of either party to execute or deliver the commencement date agreement shall not in any way reduce or modify the respective obligations of Tenant and Landlord hereunder. In the event that the Tenant Improvements (as such term is defined in Section 21 hereof) are completed prior to the Commencement Date, Tenant shall be permitted to commence occupancy and business operations within the Premises upon the completion of the Tenant Improvements until the Commencement Date without any obligation to pay Rent during such period (the "Early Access Period"). All other terms of this Lease shall be applicable during the Early Access Period, and Tenant shall be responsible for the cost of services requested by Tenant (e.g., after hours HVAC service) plus the cost of electricity charges described on Exhibit B, attached hereto.

3. RENT.

3.1 Fixed Basic Rent. Tenant shall pay to Landlord at the management office of the Building, or to such other person or such other place as directed from time to time by written notice to Tenant from Landlord or by method of electric funds transfer (EFT), without demand, notice, offset or deduction, the Fixed Basic Rent. Fixed Basic Rent shall be payable in equal monthly installments in advance on the first day of each calendar month during the Term without demand. Fixed Basic Rent shall be prorated for partial months within the Term.

3.2 Rental Payments. All sums paid by Tenant hereunder shall be first credited to any Fixed Basic Rent due and then to any Additional Rent due (and allocated among any different items of Additional Rent as Landlord may determine). All payments of Rent shall be in lawful money of the United States of America. No acceptance by Landlord of a lesser sum than the Rent then due shall be deemed to be other than on account of the earliest amount of such Rent due. No endorsement or statement on any check or any letter accompanying any check or payment of Rent shall be deemed an accord and satisfaction or compromise and settlement, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such payments due or to pursue any other remedy as provided in this Lease.

3.3 Partial Month. If the Term of this Lease begins or ends on a day other than the first or last day of a calendar month, respectively, Fixed Basic Rent payable on account of such calendar month shall be prorated (on the basis of the number of days during such calendar month that fall within the Term of this Lease and the actual number of days in such month) and, as to any partial month in which the Commencement Date occurs, shall be payable, in advance, on the Commencement Date.

3.4 Operating Expenses. Commencing on the Commencement Date, Tenant shall pay electricity charges in accordance with Exhibit B. Commencing on January 1, 2024, Tenant shall pay to

Landlord, as Additional Rent, Tenant's Proportionate Share of the amount by which Operating Expenses (defined on Exhibit B) for any year during the Term exceed the Operating Expenses for the Base Year (defined in Section 1.B), with such amount to be paid by Tenant in equal monthly installments pursuant to Landlord's estimate, as further set forth on Exhibit B. To the extent applicable, Tenant's Proportionate Share of Operating Expenses shall be reduced proportionately to correspond to the duration of periods less than a Calendar Year.

From the Commencement Date through Calendar Year 2024, Landlord shall use commercially reasonable efforts to efficiently manage Operating Expenses for the Office Unit, however, during such period there shall be no cap on any increase in Operating Expenses. Landlord agrees that commencing as of Calendar Year 2025 (the "Capped Costs Base Year"), Tenant's obligation to pay Controllable Operating Expenses (as defined below) shall not increase by more than five percent (5.0%) of the Controllable Operating Expenses payable by Tenant during the immediately preceding Calendar Year, calculated on a cumulative basis throughout the Term. For all purposes under this Lease, the term "Controllable Operating Expenses" shall mean any Operating Expenses other than insurance, utilities, snow and ice removal, any amounts associated with the costs of capital improvements to be reimbursed by Tenant, and any and all other operating expenses that are not within the reasonable control of Landlord. Operating Expenses shall be determined on an aggregate and not on an individual basis and the cap on Operating Expenses shall be determined as those expenses have been adjusted for vacancy or usage pursuant to the terms of this Lease.

3.5 Real Estate Taxes. Commencing on January 1 of the Calendar Year immediately following the Real Estate Taxes Base Year (defined below), Tenant shall pay Landlord, as Additional Rent, Tenant's Proportionate Share of the amount, if any, by which Real Estate Taxes (defined on Exhibit B) for the applicable Calendar Year exceed the Real Estate Taxes for the Real Estate Taxes Base Year (such excess amounts hereinafter called "Increases in Real Estate Taxes"). The "Real Estate Taxes Base Year" shall mean the later to occur of (a) the first Calendar Year in which Allegheny County assesses the "Building Value" for the Office Unit after completion of the construction of the Office Unit and (b) the Calendar Year 2023. The parties acknowledge the existence of a Minimum Payment and Covenant Agreement, dated February 27, 2020 ("Minimum Payment Agreement"), which establishes that upon completion of the Development Project, as such term is defined therein, that the total minimum assessed value for the Building and the property located at 5700 Penn Avenue shall be not less than \$52,625,571.00.

3.6 Additional Amounts Due Hereunder. All sums payable by Tenant under this Lease, whether or not stated to be rent, Fixed Basic Rent or Additional Rent or otherwise denominated (hereinafter collectively referred to as "Rent"), shall be collectible by Landlord as rent and in the event of a default in payment thereof Landlord shall have the same rights and remedies as for a failure to pay Fixed Basic Rent (without prejudice to any other right or remedy available therefor).

3.6 Late Charge. If Tenant shall fail to pay Fixed Basic Rent and all other sums, amounts, liabilities, and obligations which Tenant herein assumes or agrees to pay, whether designated as Rent, additional rent, costs, expenses, damages, losses or otherwise (collectively "Rent"), Tenant acknowledges that Landlord will incur costs not contemplated by this Lease, the exact amount of which is difficult to ascertain. Accordingly, and in satisfaction of such costs, if any installment of Rent or other sum shall not be received by Landlord within ten (10) days after due, Tenant shall pay a late charge equal to ten cents for every unpaid dollar thereof plus any reasonable attorney's fees and costs incurred by Landlord by reason of Tenant's failure to pay Rent when due, notwithstanding the date on which such payment is actually paid to Landlord. In addition to the Late Charge, all due and unpaid Rent that remains unpaid for a period of thirty (30) days after due shall, as of the thirty-first (31st) day begin accruing interest at a rate of twelve percent (12%) per annum, compounded monthly, until such Rent is paid, not to exceed the maximum nonusurious rate permitted by applicable law of the State or the United State of America, whichever shall permit the higher nonusurious rate, such interest being in addition to and cumulative of any other rights and

remedies which Landlord may have with regard to the failure of Tenant to make any such payments under this Lease. Any such late charge and interest, to the extent applicable, shall be due and payable at the time of actual payment of the Rent. Nothing contained in this Paragraph 3.6 is intended to grant Tenant any extension of time in respect of the due dates for any payments under this Lease, nor shall the same be construed to be a limitation of any other rights or remedies of Landlord under this Lease or otherwise.

3.7 Independent Covenant; Survival. Tenant's covenant to pay all Rent hereunder is independent of any other covenant, agreement, term or condition of this Lease. Without limiting the other obligations of Tenant which shall survive the expiration of the Term, the obligation of Tenant to pay Rent accrued during the Term shall survive the expiration of the Term hereof.

4. UTILITIES AND SERVICES.

4.1. Landlord will furnish the following services to the Premises and the Common Area in a manner consistent with Class A office buildings in the Pittsburgh metropolitan area (i) electricity for normal lighting and ordinary office machines, (ii) during Building Hours, HVAC to provide a comfortable temperature for office business operations in accordance with Section 12 of Exhibit G of this Lease, (iii) janitorial service (as set forth in Exhibit D), (iv) cold and hot water for drinking and lavatory purposes, (v) elevator service, (vi) restroom supplies, (vii) exterior window cleaning, and (viii) maintenance of all paved surfaces and parking areas, including snow removal. In addition, Landlord shall provide Common Area lighting at the Property during Building Hours and for such additional hours as, in Landlord's judgment, is necessary or desirable to ensure proper operation of the Property and is consistent with Class A buildings within the area.

4.2. Tenant will be entitled to make use of HVAC beyond the Building Hours, at Tenant's sole cost and expense, provided Tenant has notified Landlord by 3:00 p.m. on the day that Tenant will require said overtime use if said overtime use is required on any weekday, and by 3:00 p.m. on Friday for Saturday and / or Sunday overtime use. Tenant will pay Landlord the HVAC After Hour Charge (as defined in Section 1.O) for HVAC beyond the Building Hours. The furnishing of the foregoing heating, air- conditioning and ventilation services during the times and in accordance with the standards hereinabove set forth shall be subject to any statute, ordinance, rule, regulation, resolution, or recommendation for energy conservation which may be promulgated by any governmental agency or organization which Landlord shall be required to abide.

4.3. Except as provided in this Section 4.3, Landlord shall not be held liable for any damage or injury suffered by Tenant or by any of Tenant's licensees, agents, invitees, servants, employees, contractors, or subcontractors or any other person or entity engaged, invited, or allowed to come onto the Premises by Tenant (herein collectively called "Tenant Parties"), resulting directly, indirectly, proximately, or remotely from the interruption of any service or utilities to the Premises or Building, including, but not limited to, temporary failure to supply any heating, air conditioning, electrical, water, or sewer services, or other utilities, or any of them nor shall such failure be construed as an eviction of Tenant. If (i) Landlord ceases to furnish any service in the Building as a result of a condition which affects only the Building (that is, which does not affect buildings in general in the vicinity of the Building), and (ii) such cessation is not caused by Force Majeure (defined below), and (iii) such cessation has not arisen as a result of an act or omission of Tenant or the Tenant Parties, and (iv) as a result of such cessation, the Premises (or a material portion thereof) is rendered untenable and Tenant in fact ceases to occupy such space in the manner used prior to such cessation, and (v) such interruption to cessation of services occurs and continues for a period of not less than seven (7) consecutive business days, then, as Tenant's sole and exclusive remedy for such cessation, the Fixed Basic Rent payable hereunder shall be equitably abated based on the percentage of the Premises so rendered untenable and in fact not used by Tenant commencing as of the sixth (6th) consecutive business day after such interruption commenced. Such abatement shall begin retroactively

from the date of such cessation and continue until the date the Premises become tenantable again by the removal of such cessation of services.

4.4 Tenant shall have access to the Premises 24 hours a day, 7 days a week. Landlord agrees that access to the Premises, including, without limitation, access to the Building's stairwells, elevators, fitness center and other Common Areas shall be provided by Landlord using a security access card/fob system that, as of the Commencement Date, is compatible with Tenant's existing standard 26-bit HID proximity cards. Landlord shall provide Tenant (at Landlord's cost) with access cards/fobs for access to the Building for each Tenant employee who will work in the Premises. The first one-hundred access cards/fobs shall be provided to Tenant at no cost. Any additional access cards/fobs or any access cards/fobs that are lost or need to be replaced shall be provided or replaced by Landlord and Tenant shall reimburse Landlord for the cost of same. Security system access card panels shall be installed (a) at the Building entrance to the main lobby, (b) at the ground-level entrance to Stair 4 (located on S. Euclid Avenue) and (c) at the entrance from the stairwell to the terrace on the second floor, by Landlord at Landlord's expense, prior to the Commencement Date. An additional card readers and security systems specific to Tenant's Premises, including, but not limited to, card readers from any emergency stairwells shall be installed by Tenant at Tenant's expense, as part of the Tenant Improvements.

4.5 Landlord covenants and agrees to make the planned fitness center in the Building (the "Fitness Center"), available as of the Commencement Date and during the Term for non-exclusive use by Tenant and its employees as part of the Common Areas, subject to each of Tenant's employees executing a standard waiver of liability and license agreement form used for the fitness center. For the avoidance of doubt, any Tenant employee may use the facility regardless of whether the employee's primary workplace is the Premises. Landlord shall keep the Fitness Center in good operating condition, commensurate with the condition of similar fitness centers in similar buildings in the market in which the Building is located. Tenant's employees, licensees and invitees shall have access to the Fitness Center during the Building Hours throughout the Term. The use of the Fitness Center shall be subject to the rules and regulations (including rules regarding hours of use) established from time to time by the Landlord. Landlord and Tenant acknowledge that the use of the Fitness Center by the employees shall be at their own risk. Notwithstanding the foregoing in this Section 4.5, Landlord may temporarily close or suspend access to and use of the Fitness Center for a reasonable time for the replacement, remodeling or relocation of the Fitness Center. Any such temporary closure shall not entitle Tenant to an abatement or reduction in Rent, constitute a constructive eviction, or result in an event of default by Landlord under this Lease. Tenant hereby voluntarily releases, discharges, waives and relinquishes any and all actions or causes of action for personal injury or property damage occurring to Tenant or its employees or agents arising as a result of the use of the fitness center, or any activities incidental thereto, wherever or however the same may occur, and further agrees that Tenant will not prosecute any claim for personal injury or property damage against Landlord or any of its officers, agents, servants or employees for any said causes of action. Tenant's rights hereunder to permit its employees to use the Fitness Center shall belong solely to Tenant and may not be transferred or assigned.

4.6 Landlord covenants and agrees to make available to the Office Unit tenants the following amenities during the Term: a bike storage room, building security systems, and loading docks. Landlord reserves and retains all rights to replace, remodel, and relocate, as applicable, any of the foregoing Office Unit amenities and to temporarily suspend the use of the same.

5. MORTGAGE BY LANDLORD. This Lease and Tenant's interest hereunder shall at all times be subject and subordinate to the lien and security title of any deeds to secure debt, deeds of trust, mortgages, ground or underlying leases, or other interests heretofore or hereafter granted by Landlord or which otherwise encumber or affect the Property and to any and all advances to be made thereunder and to all renewals, modifications, consolidations, replacements, substitutions, and extensions thereof (each of which

is herein called a "Mortgage"), provided the Mortgagee (defined below) recognizes the validity of this Lease and the Mortgagee agrees that, and by having the Lease be so subordinate such party is deemed to have agreed that, notwithstanding any default by Landlord with respect to said ground lease or mortgage or any termination or foreclosure thereof, Tenant's possession and right of use under this Lease and the rights of Tenant under this Lease in and to the Premises shall not be disturbed by such Mortgagee unless and until an event of Default shall have occurred hereunder and is continuing. This clause shall be self-operative and no further instrument of subordination need be required by any holder of any Mortgage. Notwithstanding the foregoing, upon request from a Mortgagee, subject to Tenant's receipt of a subordination and non-disturbance agreement from any such Mortgagee on such Mortgagee's then current form which may be revised to incorporate commercially reasonable changes requested by Tenant and approved by such Mortgagee, Tenant shall execute a commercially reasonable subordination, non-disturbance and attornment agreement in favor of the Mortgagee. In lieu of having the Mortgage be superior to this Lease, a Mortgagee shall have the right at any time to subordinate its Mortgage to this Lease.

Tenant shall, from time to time upon not less than fifteen (15) days' prior request by Landlord, deliver to Landlord an estoppel certificate, in form satisfactory to Landlord and subject to Tenant's commercially reasonable modification, in writing and certifying: (i) that this Lease is unmodified and in full force and effect (or, if there have been modifications that the Lease as modified is in full force and effect); (ii) the dates to which Rent and other charges have been paid; (iii) that Landlord is not in default under any provision of this Lease, or, if in default, the nature thereof in detail, and (iv) such other matters as may be reasonably requested, it being intended that any such statement may be relied upon by any prospective purchaser or tenant of the Office Unit, any mortgagees or prospective mortgagees thereof; or any prospective assignee of any mortgage thereof. In the event Tenant fails to deliver the estoppel certificate within such fifteen (15) days after demand in writing, Tenant shall be deemed to have accepted and executed such estoppel letter and other documents and hereby authorizes Landlord as its attorney-in- fact for the sole purpose of executing such estoppel certificate.

6. CERTAIN RIGHTS RESERVED TO LANDLORD. Landlord reserves the following rights:

(a)Entry – if Tenant abandons the Premises and fails to pay Rent in accordance with the terms set forth herein beyond any applicable notice and cure period, to enter the Premises in order to decorate, remodel, repair, alter or otherwise prepare the Premises for re-occupancy, without same being deemed acceptance of a surrender and without affecting Tenant's obligations to pay Rent.

(b)Access to Premises – Landlord and its employees, servants and agents shall have the right, upon 24 hours' prior notice, to enter the Premises during business hours, or at such other reasonable times for the purpose of examining or inspecting the Premises to ensure that Tenant is complying with all of its obligations hereunder, showing the same to prospective purchasers, mortgagees, or tenants of the Office Unit, performing janitorial, cleaning, maintenance and repair services, including, but not limited to regular HVAC service repairs, maintenance, and replacement, and making such alterations, repairs, improvements or additions to the Premises or other portions of the Property as Landlord may deem necessary or desirable. Notwithstanding the foregoing, prior to Landlord's entry into the Premises other than in an emergency or for purposes of performing Landlord's normal janitorial, cleaning, maintenance and repair services contemplated under this Lease (for which entry no advance notice shall be required), Landlord shall provide at least twenty-four (24) hours prior notice to Tenant (which notice need not be in writing). In connection with any such entry, Landlord shall be allowed to take all material into and upon the Premises that may be required therefor without the same constituting an eviction of Tenant in whole or in part, and the Rent shall not abate while said alterations, repairs, improvements or additions are being made by reason of loss or interruption of business of Tenant or otherwise. If representatives of Tenant shall not be present to open and permit entry into the Premises at any time when such entry by Landlord is necessary or permitted

hereunder, Landlord may enter by means of a master key (or forcibly in the event of an emergency) without liability to Tenant and without such entry constituting an eviction of Tenant or termination of this Lease.

(c) Building and Property Identification and Appearance – to change the Building’s, Office Unit’s, and/or Property’s name or street address; to install and maintain all signs on the exterior or interior of the Building and/or Property, to approve prior to installation, all signs, shades, blinds, drapes and internal lighting; and to change the arrangement of entrances, doors, corridors, stairs and other public service portions of the Office Unit and/or Property, provided that such changes do not materially and adversely interfere with Tenant’s reasonable access to the Premises or to the Office Unit.

Landlord may enter upon the Premises and may exercise any or all of the foregoing rights hereby reserved without being liable in any manner to Tenant. Any such entry and/or exercise of rights shall not in any way affect the obligations of Tenant under this Lease, including without limitation, the obligation to pay Rent.

7. INSURANCE AND INDEMNIFICATION.

7.1. (1) Tenant shall obtain and keep in full force during its occupancy of the Premises and during the entire Term of this Lease, at its sole cost and expense, a commercial general liability policy of insurance with coverages reasonably acceptable to Landlord, in Landlord's sole discretion, which by way of example and not limitation, protects Tenant and Landlord (as an additional insured) against claims for bodily injury, personal injury and property damage based upon, involving or arising out of Tenant’s use, occupancy or maintenance of the Premises and all areas appurtenant thereto. Such insurance shall be on an occurrence basis providing single limit coverage in an amount not less than One Million Dollars (\$1,000,000.00) per occurrence and Three Million Dollars (\$3,000,000.00) in the aggregate for personal injury, bodily injury, death, disease and damage or injury to or destruction of property (including the loss of use thereof) occurring upon, in, or about the Premises, and a policy of supplemental "umbrella" liability insurance following the form of the primary liability policy required hereunder and having a limit of not less than Five Million Dollars (\$5,000,000.00). The policy shall not contain any intra-insured exclusions as between insured persons or organizations but shall include coverage for liability assumed under this Lease as an "insured contract" for the performance of Tenant's indemnity obligations under this Lease.

(2) Tenant shall obtain and keep in force during the Term of this Lease “Causes of Loss- Special Form” property insurance. Said insurance shall be written on a one hundred percent (100%) replacement cost basis on Tenant's personal property, all tenant improvements installed at the Premises, Tenant's trade fixtures, and other property. By way of example and not limitation, such policies shall provide protection against any peril included within the classification “fire and extended coverage”, against vandalism and malicious mischief, theft, sprinkler leakage, earthquake damage and flood damage. If this Lease is terminated as the result of a casualty, the proceeds of said insurance, if any, attributable to the replacement of all tenant improvements at the Premises paid for by Landlord and all rental concessions shall be paid to Landlord.

(3) Tenant shall, at all times during the Term hereof, maintain in effect workers' compensation insurance as required by applicable law and insurance reasonably satisfactory to Landlord. In addition, in the event that Tenant operates or parks any Tenant-owned vehicles at the Property during the Term of this Lease, Tenant shall maintain in effect during the Term hereof a policy of automobile liability insurance with bodily injury limits of \$500,000 per person, \$1,000,000 per accident, and \$100,000 per accident for property damage.

(4) Prior to the Commencement Date, Tenant shall deliver certificates evidencing the insurance policies to Landlord. Certificates evidencing renewals shall be delivered to Landlord no later

than fifteen (15) days after each renewal, as often as renewal occurs, and in no event less than fifteen (15) days prior to the date on which the policy would otherwise expire. Tenant shall use commercially reasonable efforts to request and obtain from its insurance carriers insurance policies that require the insurer to notify Landlord in writing thirty (30) days prior to any cancellation. The inability of Tenant to obtain an insurer's consent to delivery such notice to Landlord after reasonable efforts shall not constitute a default hereunder. Notwithstanding the foregoing, Tenant shall promptly deliver notice to Landlord upon Tenant's receipt any notice of cancellation issued by any of Tenant's insurers providing the coverages required under this Lease.

(5) In the event Tenant fails to furnish such insurance, Landlord may obtain such insurance and the premiums shall be paid by Tenant to Landlord upon demand. The minimum limits of the aforesaid insurance shall be subject to increase at the end of every three (3) years during the Term if Landlord, in the exercise of its reasonable judgment, shall deem it necessary for adequate protection.

7.2 Landlord makes no representation to Tenant that the limits or forms of coverage specified above or approved by Landlord are adequate to insure Tenant's property or Tenant's obligations under this Lease, and the limits of any insurance carried by Tenant shall not limit Tenant's obligations or liability under any indemnity provision included in this Lease or under any other provision of this Lease.

7.3 All insurance policies obtained by Tenant pursuant to this Section 7 shall be in form and substance reasonably satisfactory to Landlord and shall be issued by companies qualified to do business in the Commonwealth of Pennsylvania that have ratings of not less than "A-" and of not less than "Class XI" in financial size in the most current available A.M. Best's Insurance Reports. Such policies (exclusive of the worker's compensation policy) shall name Landlord, Manager and such other parties as Landlord shall specify as additional insureds to the extent of the liabilities for third party bodily injury and property damage assumed by Tenant under this Lease and shall further specify that Landlord shall receive thirty (30) days prior written notice of any proposed cancellation, non-renewal of or material change in any such policy. Certificates of all policies of insurance obtained by Tenant hereunder shall be provided to Landlord prior to Tenant's entry upon the Premises, and thereafter at least thirty (30) days prior to the scheduled expiration date of each such policy, evidencing Tenant's renewal or replacement thereof.

7.4 All policies of insurance carried or required to be carried by either party hereunder shall include a waiver of subrogation endorsement, containing a waiver by the insurer of all right of subrogation against the other party in connection with any loss, injury or damage thereby insured against. The waiver of subrogation shall apply regardless of any deductible (or self-insured retention) or self-insurance carried by either party. Any additional premium for such waiver shall be paid by the primary insured. To the full extent permitted by law, Landlord and Tenant each waive all rights of recovery against the other (and any officers, directors, partners, employees, agents and representatives of the other), and agree to release the other from liability, for loss or damage to the extent such loss or damage is covered by valid and collectible insurance in effect covering the party seeking recovery at the time of such loss or damage or would be covered by the insurance required to be maintained under this Lease by the party seeking recovery. If the release of either party, as set forth above, should contravene any law with respect to exculpatory agreements, the liability of the party in question shall be deemed not released but shall be secondary to the liability of the other's insurer. Written notice of the terms of such mutual waivers of subrogation shall be given to each insurance carrier and said insurance policies shall be properly endorsed, if necessary, to prevent the invalidation of said insurance coverages by reason of said waivers.

7.5 Tenant will indemnify, save harmless, and defend Landlord from and against any and all claims and demands in connection with any accident, injury or damage whatsoever caused to any person or property arising directly or indirectly out of the operation of Tenant's business in the Premises or any part thereof, or arising directly or indirectly from any act or omission of Tenant or any party acting under the direction or under the control of Tenant, and from and against any and all cost, expenses and liability,

including reasonable attorneys' fees, incurred in connection with any such claim or proceeding brought thereon, except to the extent the same arises from the negligence or willful misconduct of Landlord. Landlord shall indemnify, save harmless and defend Tenant from and against any and all claims and demands in connection with any accident, injury or damage whatsoever caused to any person or property, including reasonable attorneys' fees, arising out of the negligence or willful misconduct of Landlord, to the extent of proceeds of insurance actually received by Landlord. The indemnity obligations in this Section 7.5 shall survive any expiration or termination of this Lease.

7.6 If any insurance policy upon the Premises or the Office Unit or any part thereof shall be canceled or shall be threatened by the insurer to be canceled, the coverage thereunder reduced or threatened to be reduced, or the premium therefor increased or threatened to be increased in any way by the insurer by reason of the use and occupation of the Premises by Tenant or by any assignee or subtenant of Tenant and if Tenant fails to remedy the condition giving rise to the cancellation, reduction, or premium increase or threat thereof within ten (10) business days after notice thereof by Landlord, Landlord may, at its option, do any one of the following:

(i) Enter upon the Premises and remedy the condition giving rise to the cancellation, reduction, or premium increase or threat thereof, and in such event, Tenant shall forthwith pay the cost thereof to Landlord as additional rent; and if Tenant fails to pay such cost, Landlord may declare a default by Tenant and thereupon the provisions of Sections 15 and 16 shall apply, and Landlord shall not be liable for any damage or injury caused to any property of Tenant or of others located on the Premises as a result of the entry; or

(ii) If the sole action taken by the insurer is to raise the premium or other monetary cost of the insurance, demand payment from Tenant of the premium or other cost as additional rent hereunder, and if Tenant fails to pay the increase to Landlord within ten (10) days of demand by Landlord, Landlord may declare a default by Tenant and thereupon the provisions of Sections 15 and 16 shall apply. Tenant acknowledges that it has no right to receive any proceeds from any insurance policies carried by Landlord and that such insurance will be for the sole benefit of Landlord with no coverage for Tenant for any risk insured against.

7.7 From and after the date of this Lease, Landlord will obtain and keep in full force during the entire Term of this Lease (a) a commercial general liability policy of insurance with coverage against claims for personal injury, death and property damage occurring in or about the Property, which coverage shall afford protection with limits of not less than Five Million Dollars (\$5,000,000.00) in the aggregate, and (b) a policy or policies of all risks extended coverage insurance covering the Property endorsed to provide full replacement cost coverage and providing protection against perils included within the standard Pennsylvania form of fire and extended coverage insurance policy, together with insurance against sprinkler damage, vandalism, malicious mischief and such other risks as Landlord may from time to time reasonably determine consistent with relevant industry standards and with any such deductibles as Landlord may from time to time reasonably determine consistent with relevant industry standards. For the purposes of this Section 7.7, Landlord may provide coverage under an umbrella policy providing the minimums set forth above to satisfy the insurance obligations herein.

8. CASUALTY.

8.1 Should the Premises (or any part thereof) be damaged or destroyed by fire or other casualty insured under Landlord's standard fire and casualty insurance policy with approved standard extended coverage endorsement applicable to the Premises, Landlord shall, except as otherwise provided herein, repair and/or rebuild the Premises to the same condition as existed on the Commencement Date with reasonable diligence, commencing the work within 90 days after such damage (subject to delays in the

adjustment of insurance). Landlord shall promptly and diligently seek adjustment of insurance proceeds after any casualty. Landlord's obligation hereunder shall be limited to the Office Unit and improvements originally provided by Landlord at the Commencement Date of the Term, the net proceeds of insurance recovered for the casualty damage, and shall be subject to zoning and building laws or ordinances then in existence. If there should be interference with the operation of Tenant's business in the Premises as a result of such damage or destruction which requires Tenant as a result of such damage or destruction to temporarily close its business, the Fixed Basic Rent and Additional Rent shall abate in proportion to the square footage of the Premises that Tenant is unable to utilize as a result of the casualty, for the period commencing with the damage and ending upon Landlord's completion of its restoration work, or at such earlier date as Tenant is able to resume use the entire Premises. Unless this Lease is terminated by Landlord as hereinafter provided, Tenant shall, at its cost and expense, repair, restore, redecorate and re-fixtue the Premises and restock the contents thereof in a manner and to at least a condition equal to that existing prior to such damage or destruction except for the Office Unit and improvements to be reconstructed by Landlord as above set forth, and the proceeds of all insurance carried by Tenant on the property, decorations and improvements, as well as fixtures and contents in the Premises, shall be held in trust by Tenant for such purposes. Tenant agrees to commence such work within ten (10) days after the date of such damage or destruction or the date Landlord substantially completes any reconstruction required to be completed by it pursuant to the above, whichever date is later, and Tenant shall diligently pursue such work to its completion.

8.2 Notwithstanding anything to the contrary contained in the preceding Paragraph 8.1 or elsewhere in this Lease, Landlord may terminate this Lease on thirty (30) days' notice to Tenant, given within ninety (90) days after the occurrence of any damage or destruction if: (1) the Premises are damaged or destroyed as a result of a risk which is not covered by Landlord's insurance, (2) the Premises are damaged and the cost to repair the same shall be more than twenty-five percent (25%) of the cost of replacement thereof, (3) the Premises are damaged during the last two (2) years of the Term, (4) if the Office Unit is damaged (whether or not the Premises are damaged) to such an extent that, in the sole judgment of Landlord, the Office Unit cannot be operated as an integral unit, (5) if available insurance proceeds for the Office Unit are insufficient to repair or rebuild the damage, (6) if any mortgagee shall not permit the applicable of adequate insurance proceeds for repair or restoration, or (7) if the casualty results in damage to the Premises which Landlord reasonably estimates will take in excess of 12 months after the beginning of restoration to restore the Premises to the same condition as existed on the Commencement Date. Tenant may terminate this Lease, upon thirty (30) days prior written notice to Landlord given within ninety (90) days after the occurrence of any casualty event if: (i) the Premises are damaged or destroyed and Landlord's estimate of time to complete repairs (given within sixty (60) days after such casualty) is greater than two hundred seventy (270) days, or (ii) the Premises or Office Unit is damaged within the last twelve (12) months of the Term.

8.3 Tenant agrees that Landlord's obligation to restore, and the rental abatement provided in this Article, shall be Tenant's sole recourse against Landlord in the event of casualty damage to the Premises, and Tenant waives any other rights Tenant may have under any applicable law or any other Article of this Lease to terminate this Lease or seek damages against Landlord by reason of casualty damage to the Premises or the Office Unit. This Article represents the entire agreement between the parties respecting casualty damage to the Premises or the Office Unit.

9. SURRENDER OF PREMISES. Tenant shall deliver the Premises (together with all Tenant Improvements, alterations and other improvements made by or on behalf of Tenant) to Landlord upon the expiration or sooner termination of the Term or upon termination of Tenant's right of possession of the Premises in good condition, less ordinary wear and tear, or damage from casualty, excepted, failing which Landlord may restore the Premises to such condition and Tenant shall pay Landlord the cost thereof upon demand. All installations (including low voltage cabling), alterations, additions, hardware, non-trade

fixtures and improvements, temporary or permanent, except movable furniture, trade fixtures and equipment belonging to Tenant ("Fixtures"), in or upon the Premises, whether placed there by Tenant or Landlord, shall be Landlord's property and shall be relinquished to Landlord in good condition, ordinary wear and tear excepted, at the termination of this Lease or Tenant's right to possession by lapse of time or otherwise, all without compensation, allowance or credit to Tenant. At the time of approving alterations in accordance with Section 10 or the Tenant Improvements Work in Section 21, Landlord may identify in writing to Tenant that such alterations must be removed or restored at the end of the term. Tenant shall otherwise have no obligation to remove the Tenant Improvements or any alterations or improvements under this Section 9 that have been approved by Landlord in writing pursuant to Section 10 unless identified by Landlord in accordance with the immediately preceding sentence. If Tenant fails to comply with the provision of this paragraph, all personal property and equipment of Tenant shall be deemed abandoned and Landlord may remove the same upon two (2) business days' notice and Tenant shall, upon demand, pay to Landlord the cost of such removal and of any necessary restoration of the Premises.

10. ALTERATIONS.

10.1 No alteration, addition, or improvement to or installation in the Premises shall be made or permitted to be made by Tenant without the prior written consent of Landlord. Landlord shall not unreasonably withhold Landlord's consent subject to Tenant (a) obtaining Landlord's prior approval of final plans and specifications; (b) obtaining Landlord's prior approval of all contractors and subcontractors and their respective contracts; (c) obtaining all permits, approvals, and certificates required by any governmental or quasi-governmental bodies and, upon completion, certificates of final approval and shall deliver promptly duplicates of all such permits, approvals and certificates to Landlord; and (d) prior to occupancy by Tenant and/or commencement of any alterations or improvements by contractors or subcontractors, providing proof of coverage by any contractor by a certificate and/or copy of the policy complying with all insurance requirements set forth herein, as the same may be changed by written notice from Landlord to Tenant from time to time during the Term. Landlord shall either approve or make reasonable detailed comments on any plans and specifications within ten (10) days after delivery of such plans and specifications to Landlord, or within twenty (20) business days of Tenant's delivery of such plans and specifications if the alteration, addition or improvement will impact the structural components or mechanical systems of the Office Unit. Landlord reserves the right to require Tenant to utilize certain subcontractors for the performance of alterations that may impact, modify, or otherwise affect the operation of the Office Unit's systems or that may void or otherwise impact any applicable warranty. Before commencing any such work, Tenant shall furnish Landlord with certificates of insurance from all contractors performing labor or furnishing materials insuring Landlord with the following limits: (i) Workmen's Compensation - statutory limits of liability; (ii) General Liability - \$1,000,000 each occurrence/\$2,000,000 aggregate; (iii) Automotive Liability - \$250,000 each occurrence/\$1,000,000 aggregate. In the event that Landlord approves a request for alteration, such approval shall not constitute a representation or warranty of Landlord as to the adequacy or sufficiency of such drawings, plans and specifications, or alterations, improvements, modifications or additions to which they relate, for any use, purpose or conditions, or that the same is acceptable for any governmental approvals or permits, or with respect to the design and engineering of any such work, but such approval shall merely be the consent of Landlord for Tenant to complete the proposed alterations. Notwithstanding anything to the contrary in this Lease, this Section 10 shall not apply to the initial Tenant Improvements outlined in Section 21. Upon completion of any alterations within the Premises, Tenant shall furnish to Landlord a full size original of all plans, all electronic files, and all CADD files, as may be applicable.

10.2 Notwithstanding the foregoing, Landlord's written approval shall not be required for any project that will cost, in the aggregate (for a given project), less than \$100,000.00 to complete and which will solely entail any or all of the following types of work: (a) the laying of carpeting or vinyl flooring within the Premises, (b) the painting of interior surfaces of the Premises, (c) the hanging of pictures,

diplomas, objects of art or similar items within the Premises in a manner consistent with applicable Building rules and regulations, and (d) the undertaking of cosmetic alterations that will not in any way impact the exterior of the Office Unit or the Office Unit's external appearance and will not impact or have the potential to impact or affect in any manner the Office Unit's structural, roofing, mechanical, HVAC, electrical or plumbing systems, base building systems, or any such systems components; provided, however, that Tenant shall nonetheless give Landlord prior written notice of any intended work or alterations (except as to matters described in clause (c) hereof), together with a detailed description thereof, and such work or alterations shall be undertaken in accordance with all of Landlord's then-applicable rules and regulations and the other terms of this Lease, and shall be subject to Landlord's reasonable scheduling requirements if the work is of a nature that might disturb other tenants of the Office Unit or interfere with ongoing construction activities elsewhere in the Office Unit. To the extent that Tenant desires to complete any alterations in accordance with US Green Building Council's ("USGBC") standards and objectives, Tenant may utilize the performance standards set forth for commercial interiors LEED CI rating system to certify the alterations with the USGBC. Landlord makes no representations or warranties that any or all alterations will be certified and Tenant should coordinate with USGBC prior to commencing any such alterations.

10.3 Tenant hereby agrees to defend, indemnify, and hold harmless Landlord, its agents and employees from any and all liabilities of every kind and description which may arise out of or be connected in any way with any such work, including the filing of mechanics' liens or other claims. Tenant agrees to repair immediately any damage to the Property caused by, or in connection with, the removal of any articles of personal property, business or trade fixtures, alterations, improvements and installations, including, without limitation thereto, repairing the floor and patching and painting the walls where required by Landlord, to Landlord's satisfaction.

10.4 All alterations, additions, or improvements made, installed in, or attached to the Premises by Tenant, upon the consent specified above, shall be made at Tenant's expense at Tenant's sole risk and in a good and workmanlike manner with labor and materials of such quality as Landlord may reasonably require (it being understood that materials equal to or better than those that are then existing shall be considered acceptable), strictly in accordance with the plans and specifications approved by Landlord, all applicable codes, laws, ordinances, regulations, and other requirements of any appropriate governmental authority, and any applicable covenants or other restrictions, and prosecuted diligently and continuously to completion so as to minimize interference with the normal business operations of other tenants in the Office Unit, the performance of Landlord's obligations under this Lease and any work being done by contractors engaged by Landlord with respect to or in connection with the Office Unit. Tenant's architect and engineers must be licensed in the Commonwealth of Pennsylvania and must be insured.

10.5 Other than as related to the initial buildout for Tenant, Tenant agrees to reimburse Landlord a reasonable fee equal to the costs incurred or otherwise invoiced to Landlord by Landlord's consultants for examination and approval of any architectural or engineering plans and specifications, which shall be payable as Additional Rent within thirty (30) days after demand.

10.6 Upon completing any such work that exceeds \$100,000.00 in costs, Tenant shall furnish Landlord with contractors' affidavits and full and final waivers of lien and receipted bills covering all labor and materials expended and used. Tenant shall obtain valid and effective lien waiver(s) from each sub-contractor, contractor, and material provider in exchange for all payments made to such sub-contractor, contractor, and material provider for any such work or materials, however, copies of paid invoices may be provided in lieu of lien waivers for material suppliers. All such work shall comply with all insurance requirements, with all of Landlord's Rules and Regulations, and with all applicable laws (including, but not limited to The Americans with Disabilities Act), ordinances, and regulations. If any such work results in a change in the heating, cooling or ventilating load in the Premises, Tenant shall, at its expense, and after approval from Landlord, modify the existing systems to accommodate such load change. Tenant shall also

deliver to Landlord a complete copy of the “as-built” or final plans and specifications for all alterations or physical additions so made in or to the Premises within sixty (60) days of completing the work.

10.7 Tenant shall have the non-exclusive rights at Tenant’s sole cost and expense and upon Landlord’s prior written approval, not to be unreasonably withheld, conditioned, or delayed, (a) to place one (1) antenna or satellite dish on the roof of the Building in an area not to exceed one hundred square feet (hereinafter “Satellite Dish”), and (b) to install a direct fiber line for internet in the Building, each being subject to the rules and regulations set forth on Exhibit “I” attached hereto and incorporated herein by reference.

11. REPAIRS AND MAINTENANCE.

11.1. Landlord’s Repairs and Maintenance. Landlord shall keep the roof, roof membrane, foundation, exterior walls, windows, window seals, Common Areas, electrical systems, HVAC systems, plumbing systems, fire suppression systems, fire alarm systems and all common sewer and utility lines located outside the Premises, in good order and repair consistent with Class A buildings in the Pittsburgh metropolitan area and in compliance with all applicable laws, and in a tenantable, safe condition. Landlord shall be responsible for the repair, maintenance, and replacement of light bulbs and lighting fixtures located within the Premises, with such costs and expenses being the responsibility of Tenant. Landlord shall have no obligation to maintain, replace, or repair any other improvements located within the Premises, the maintenance of which is and shall be the responsibility of Tenant. Notwithstanding the obligation of Landlord under this Section 11.1, Tenant shall be responsible for the cost of any and all damage and / or repairs arising from the negligence or willful misconduct of Tenant or any of the Tenant Parties. Landlord shall have no obligation to make any repairs unless and until Tenant notifies Landlord in writing of the necessity thereof, in which event Landlord shall have reasonable time in which to make such repairs; however, Tenant may notify Landlord verbally of any emergency repairs or any minor, routine or day-to-day repairs which need to be made.

Landlord covenants to use commercially reasonable efforts to implement repairs, alterations, additions or improvements (including, without limitation, any work related to the initial construction of the Building) in a timely and expeditious manner and covenants to take reasonable steps to minimize disruption and interference with Tenant’s operations in the Premises. Provided Landlord reasonably complies with the preceding sentence, Landlord shall not be liable by reason of any inconvenience, injury to, or interference with Tenant’s business arising from the making of any repairs, alterations, additions or improvements in or to the Premises or the Property and Office Unit or to any appurtenances or equipment therein. Prior to commencing any such repairs, alterations, additions, or improvements that are reasonably anticipated to be disruptive to Tenant’s business operations within the Premises, Landlord will provide Tenant with notice prior to commencement of such work. No prior notice shall be required for any repairs completed during an ongoing emergency. There shall be no abatement of Rent because of such repairs, alterations, additions, or improvements except as specifically set forth in Section 8 of this Lease. To the extent requested by Tenant and subject to scheduling limitations, Landlord shall use commercially reasonable efforts, at Tenant’s expense, to perform such work at times other than during the normal Business Hours if reasonably required to avoid disruption to Tenant’s business operations in the Premises. Tenant shall pay any additional costs incurred for the completion of any such maintenance or repairs after normal Building Hours as Additional Rent hereunder.

11.2. Tenant’s Repairs and Maintenance. Tenant shall keep the Premises free from all litter, dirt, debris, and obstructions and in a clean and sanitary condition. Tenant will not commit any act that damages the Premises or Office Unit and will take good care of the Premises. Except as otherwise provided in Section 11.1 hereof, Tenant shall maintain, replace, and repair the Premises, including, but not limited to, florescent or other bulb replacement, finishes, wall coverings, carpets, fixtures, floor coverings, low voltage wiring

and glass within the Premises, and shall keep the Premises and the fixtures herein neat and in good, operable and orderly condition in such a manner so that the Premises are maintained in good condition and suitable for Tenant's Permitted Use. At the expiration or other termination of this Lease, Tenant shall surrender the Premises (and keys thereto) in as good condition as when received, loss by fire or other casualty not the result of any act or omission by Tenant, or ordinary wear and tear only excepted.

12. RULES AND REGULATIONS. Tenant shall abide by the current Rules and Regulations for the Office Unit attached to this Lease and made a part hereof as Exhibit "C", the Dog Policy Rules and Regulations attached to this Lease and made a part hereof as Exhibit "C-1", the Food Preparation Rules and Regulations attached to this Lease and made a part hereof as Exhibit "C-2", and by all additional reasonable rules and regulations as may be adopted and equitably enforced by Landlord from time to time for the operation and management of the Office Unit and Property.

13. ASSIGNMENT AND SUBLETTING.

13.1. Tenant, for itself, its heirs, distributees, executors, administrators, legal representatives, successors and assigns, expressly covenants that it shall not, voluntarily, involuntarily, by operation of law or otherwise, without Landlord's prior written consent (a) assign, convey, mortgage, pledge, encumber, hypothecate, or otherwise transfer this Lease or any interest therein; (b) allow any lien upon Tenant's interest; (c) sublet the Premises or any part thereof; (d) permit the use or occupancy of the Premises or any part thereof by anyone other than Tenant; or (e) grant any concession or license within the Premises. Tenant shall, by written notice, advise Landlord of any proposed assignment or subletting which notice shall state the name and address of the proposed assignee or subtenant, a summary of the terms of such subletting or assignment, including without limitation, all rent and/or other consideration payable thereunder or in connection therewith, and the effective date of such assignment or subletting (which shall be not less than thirty (30) days from the date such notice is given) (the "Tenant Notice"), and, concurrently with such Tenant Notice, Tenant shall deliver to Landlord a complete, unexecuted copy of the proposed sublease or assignment, all other documents and instruments related thereto and the proposed assignee's or subtenant's most recent financial statements for the past twelve (12) month period. Landlord shall have the right to make such investigations as it deems reasonable and necessary in determining the acceptability of the proposed assignee or subtenant. In the case of a sublease only, Landlord, at its election, shall have the right to be exercised by notice to Tenant given within ten (10) days after Landlord's receipt of Tenant's Notice, to terminate this Lease with respect to the space therein described as of the date stated in Tenant's Notice. If Tenant's Notice shall cover all of the Premises, and Landlord shall give the aforesaid termination notice, the Term of this Lease shall expire and end on the date stated in Tenant's notice as the effective date of subletting as fully and completely as if that date had been herein definitely fixed for the expiration of the Term. If, however, this Lease shall be terminated by Landlord pursuant to the foregoing with respect to less than the entire Premises, the Rent herein reserved shall be adjusted on the basis of the number of square feet of rentable area retained by Tenant in proportion to the number of square feet of rentable area in the entire Premises, and this Lease, as so amended, shall continue thereafter in full force and effect. If Landlord shall terminate this Lease in whole or in part as aforesaid, Landlord shall be free to deal directly with any such proposed subtenant without any responsibility or liability to Tenant on account thereof. Upon Landlord's consent to any assignment or sublease, prior to the assignee's or subtenant's occupancy of the Premises, Tenant shall deliver to Landlord a true and complete copy of the executed sublease or assignment and all other documents and instruments related thereto.

13.2 Landlord, upon receiving the Tenant Notice with respect to any such space, will not unreasonably withhold its consent to Tenant's assigning or subletting the space covered by the Tenant Notice and shall provide its consent or denial within ten (10) business days thereafter (Landlord's failure to provide a response shall be deemed to be a denial of such request). Tenant agrees that any such assignment or sublease shall be subject to the following: (i) at the time thereof Tenant is not in default under

this Lease beyond any notice and cure provision; (ii) Landlord, in its sole discretion reasonably exercised, determines that the business and proposed use of the Premises of the proposed subtenant or occupant, as the case may be, are consistent with the Permitted Use described in this Lease; (iii) any assignee or subtenant shall expressly assume all the obligations of this Lease on Tenant's part to be performed; (iv) such consent, if given, shall not release Tenant of any of its obligations or liabilities whether past, present, or future (including, without limitation, its obligation to pay Rent) under this Lease; (v) Tenant agrees specifically to pay over to Landlord, as Additional Rent, all sums received by Tenant under the terms and conditions to such assignment or sublease which are in excess of the amounts otherwise required to be paid pursuant to this Lease, including, but not limited to, all other consideration, payments for furniture, fixtures, or equipment, and all other consideration of any form, type, or substance; (vi) a consent to one assignment, subletting, occupation or use shall be limited to such particular assignment, sublease, or occupation and shall not be deemed to constitute Landlord's consent to an assignment or sublease to or occupation by another person or entity; (vii) the liability of Tenant and each assignee will be joint, several, and primary for the observance of all the provisions, obligations and undertaking of this Lease, including the payment of Fixed Basic Rent and Additional Rent through the entire Term as the same may be renewed, extended, or otherwise modified, (viii) not in violation of any exclusive use restrictions in any occupancy or other agreement for space within the Office Unit, and (ix) Tenant will pay Landlord a reasonable administrative fee not to exceed \$1,500.00 for fees incurred with respect to each request for consent, payable as Additional Rent. Any such assignment or subletting without such consent shall be void.

13.3 Excepting any Permitted Transfer (defined below), in the event of a full assignment or sublease of this Lease through the end of the Term, any option or similar right of Tenant hereunder, including without limitation, any option to extend or renew, option to expand, first offer or first refusal right, or first right to lease, and all exterior signage rights are terminated; all options granted to Tenant hereunder upon the execution of the assignment or sublease shall henceforth become null and void and Tenant shall have no further rights thereto or therein.

13.4 Notwithstanding anything contained in this Lease to the contrary, Tenant may assign this Lease or sublet all or any portion of the Premises (without Landlord's prior written consent, but upon written notice to Landlord within five (5) days of any such assignment or sublease) to (i) any corporation or other entity directly or indirectly controlling or controlled by Tenant or under common control with Tenant, or (ii) any successor by merger, consolidation, corporate reorganization or acquisition of all or substantially all of the assets of Tenant (any transaction referred to in clauses (i) or (ii) hereof will be a "Permitted Transfer") provided that the net worth of any transferee of a Permitted Transfer will not be less than the greater of (A) the net worth of Tenant immediately preceding the Permitted Transfer or (B) the net worth of Tenant as of the date of the execution and delivery of this Lease by both parties. Any other assignment or subleasing of Tenant's interest under this Lease will be subject to Landlord's approval, which approval will not be unreasonably withheld, conditioned or delayed. To the extent requested by Landlord, Tenant and any assignee or sublease shall execute a written agreement evidencing such assignment or sublease.

13.5 In addition to any other grounds for denial, Tenant agrees that it shall be reasonable for Landlord to withhold Landlord's consent to a proposed assignment or sublease (except as otherwise provided in subparagraph 13.4 above) if, in Landlord's good faith judgment:

(a) the proposed assignee or subtenant does not have the financial strength to perform its obligations under this Lease or any proposed sublease;

(b) the proposed assignee or subtenant is a business competitor of Landlord or Manager, or is an affiliate of a business competitor of Landlord or Manager;

(c) the proposed assignee or subtenant intends to use any part of the Premises for a purpose not permitted under this Lease, for a use that Landlord considers to be inconsistent with the quality of the Office Unit or with other uses in the Office Unit, or in conflict with any exclusive uses then granted to other tenants of the Office Unit, or for a use entailing the use, storage, generation or transport of Hazardous Materials within the Office Unit; or

(d) a prospective tenant to whom Landlord has shown space in the Office Unit, and with whom Landlord has proposed possible lease terms, within the six (6) months preceding Landlord's receipt of the Tenant Notice and, in any of such events, at the time of Landlord's receipt of the Tenant's Notice for consent hereunder any portion of the Office Unit is not fully leased to other tenants and Landlord is able to meet the square footage requirements of Tenant's proposed assignee or subtenant by leasing to such person or entity available space in the Office Unit that is reasonably comparable to the Premises (or the portion thereof proposed to be occupied by such person or entity).

14. HOLDING OVER. If Tenant retains possession of the Premises, or any part thereof, after the expiration or earlier termination of this Lease, Tenant shall pay Fixed Basic Rent at an annual rate equal to 150% of the Fixed Basic Rent payable for the last month of the Term immediately preceding said holdover computed on a per month basis and 100% of Additional Rent, and any damages sustained by Landlord as a result of such holdover. If any holdover in any portion of the Premises continues for a period exceeding thirty (30) days after delivery by Landlord of a written notice to vacate, then Tenant shall also be liable for any and all damages incurred by Landlord as a result of such holding over. The provisions of this Paragraph do not waive the Landlord's right of re-entry or any other right hereunder that may be awarded by a court of law, and Landlord's acceptance of Rent after expiration of the Term or earlier termination of this Lease shall not constitute consent to a holdover or result in a renewal. Nothing contained herein shall be construed to constitute Landlord's consent to Tenant holding over after the expiration or earlier termination of the Term.

15. DEFAULT. The occurrence of any one or more of the following shall constitute a default and breach of this Lease by Tenant (a "Default").

15.1 A failure by Tenant to timely pay any installment of Rent hereunder or any such other sum which is required to be paid by Tenant continuing for five (5) days following delivery of written notice from Landlord, which prior notice shall only be required to be delivered by Landlord two (2) times per Calendar Year, whereupon any additional failure to timely pay Rent hereunder during such Calendar Year would constitute an automatic default;

15.2 A failure by Tenant to observe and perform any other provision or covenant of this Lease to be observed or performed by Tenant, where such failure continues for thirty (30) days after written notice thereof from Landlord to Tenant, provided, however, that if the nature of the default is such that the same cannot reasonably be cured within such thirty (30) day period, Tenant shall not be deemed to be in default if Tenant shall within such period commence such cure and thereafter diligently prosecutes the same to completion (not to exceed ninety (90) days in the aggregate);

15.3 The filing of a petition by or against Tenant for adjudication as a bankrupt or insolvent or for its reorganization or for the appointment pursuant to any local, state or federal bankruptcy or insolvency law of receiver or trustee of Tenant's property; or an assignment by Tenant for the benefit of creditors; or the taking possession of the property of Tenant by any local, state or federal government officer or agency or court-appointed official for the dissolution or liquidation of Tenant or for the operation, either temporarily or permanently, of Tenant's business; provided, however, that if any such action is commenced against Tenant the same shall not constitute a default if Tenant causes the same to be dismissed within thirty (30) days after the filing of same.

15.1 Intentionally omitted.

15.2 The filing of a lien upon the Premises or the Property or any part thereof as result of Tenant's occupancy of the Premises, and the failure of Tenant to cause discharge or to bond against such lien within thirty (30) days after it receives actual notice from Landlord of same.

15.3 Tenant does not maintain in full force and effect and in the form required throughout the Term all insurance which Tenant is required to maintain under this Lease.

15.4 Any material misrepresentation by Tenant in this Lease, or material misrepresentation or omission in any financial statements or other materials provided by Tenant or any guarantor in connection with negotiating or entering this Lease or in connection with any sublease or assignment under Section 13.

15.5 Any assignment of this Lease or sublease of the Premises not in accordance with Section 13 herein.

16. REMEDIES.

16.1. Landlord's Options. Upon the occurrence of any such Default set forth above, Landlord shall have the right, at its option, without further notice or demand of any kind to do the following:

(i) Terminate this Lease and Tenant's right to possession of the Premises and/or proceed in accordance with any and all provisions of Section 16.2 below; or

(ii) Terminate Tenant's right to possession but not the Lease and/or proceed in accordance with any and all provisions of Section 16.2 below.

16.2. Landlord's Remedies. Upon the occurrence of a Default, the following shall apply:

(i) Landlord may upon providing notice to Tenant reenter and repossess the Premises and dispossess Tenant by summary proceedings or otherwise (provided any such non-judicial action does not constitute a breach of the peace or contravene local or state laws), as well as the legal representative(s) of Tenant and/or other occupant(s) of the Premises and remove their effects, and terminate this Lease.

(ii) Landlord may accelerate all Fixed Basic Rent and additional rent for a period of twelve (12) months from the Event of Default (or such lesser time as would otherwise remain in the Term) and for all unamortized tenant improvement allowances, free or reduced Fixed Basic Rent, and leasing commissions actually granted to Tenant or incurred by Landlord, and declare the same to be immediately due and payable. Landlord shall thereafter be entitled to accelerate all Fixed Basic Rent and additional rent for additional twelve (12) month period(s) on the anniversary of such Event of Default for the remainder of the Term thereafter (or such lesser time as would otherwise remain in the Term). Landlord shall use commercially reasonable efforts to relet the Premises at market rent and receive rent therefrom, provided, however, Tenant shall not be entitled to receive any such rent and shall remain liable for the equivalent of the amount of all Rent reserved herein less the avails of reletting, after deducting therefrom all reasonable expenses incurred by Landlord in pursuing its remedies, such as (by way of illustration and not limitation) those for reasonable attorneys' fees, brokerage, advertising, and refurbishing the Premises in good order or preparing them for re-rental. In determining the amount of any future payments due

Landlord due to increases in Operating Expenses, Landlord may make such determination based upon the amount of Operating Expenses paid by Tenant for the full year immediately prior to such Default and may assume that such expenses will increase three percent (3%) each year.

(iii) Landlord may, at any time after the occurrence of any event of Default, re-enter and repossess the Premises and/or any part thereof (provided any such non-judicial action does not constitute a breach of the peace or contravene local or state laws) and use commercially reasonable efforts to relet all or any part of such Premises for and upon such terms and to such persons, firms or corporations and for such period or periods as Landlord, in its sole discretion, shall determine, including for a term extending beyond the expiration date of the Term; provided, however, Tenant shall remain liable for the equivalent of the amount of all Rent reserved herein less the avails of reletting, after deducting therefrom all reasonable expenses incurred by Landlord in pursuing its remedies. For the purposes of such reletting, Landlord may decorate or make repairs, changes, alterations or additions in or to the Premises to the extent reasonably deemed by Landlord desirable or convenient; and the cost of such decoration, repairs, changes, alterations or additions shall be charged to and be payable by Tenant as additional rent hereunder, as well as any reasonable brokerage and legal fees expended by Landlord; and any sums collected by Landlord from any new tenant obtained on account of Tenant shall be credited against the balance of the Rent due hereunder as aforesaid;

(iv) For a non-montetary Default, enter upon the Premises and do whatever Tenant is obligated to do under the terms of this Lease; and Tenant agrees to reimburse Landlord on demand for any expenses which Landlord may incur in effecting compliance with Tenant's obligations under this Lease plus fifteen percent (15%) of such cost to cover overhead plus interest at the past due rate provided in this Lease, and Tenant further agrees that Landlord shall not be liable for any damages resulting to Tenant from such action. No action taken by Landlord under this Section 16.2(iv) shall relieve Tenant from any of its obligations under this Lease or from any consequences or liabilities arising from the failure to perform such obligations.

(v) Recover any and all costs incurred by Landlord resulting directly, from the Default, including but not limited to reasonable attorneys' fees and costs, but excluding punitive damages and consequential damages not otherwise expressly specified in this Lease.

(vi) Exercise any and all other remedies available to Landlord in this Lease, at law or in equity.

(vii) WHEN THIS LEASE SHALL BE DETERMINED BY CONDITION BROKEN, EITHER DURING THE ORIGINAL TERM OF THIS LEASE OR ANY RENEWAL THEREOF, AND ALSO WHEN AS SOON AS THE TERM HEREBY CREATED EXPIRES OR IS EARLIER TERMINATED, UPON NOT LESS THAN THIRTY (30) DAYS PRIOR WRITTEN NOTICE TO TENANT, IT SHALL BE LAWFUL FOR ANY ATTORNEY TO APPEAR AS ATTORNEY FOR THE TENANT AND TO ENTER IN ANY COMPETENT COURT AN AMICABLE ACTION AND JUDGMENT IN EJECTMENT AGAINST TENANT AND ALL PERSONS OR ENTITIES CLAIMING UNDER TENANT FOR THE RECOVERY BY LANDLORD OF POSSESSION OF THE PREMISES, FOR WHICH THIS LEASE SHALL BE SUFFICIENT WARRANT; WHEREUPON, IF LANDLORD SO DESIRES, A WRIT OF POSSESSION MAY ISSUE FORTHWITH WITHOUT ANY PRIOR WRIT OR PROCEEDING WHATSOEVER, AND PROVIDED THAT, IF FOR ANY REASON AFTER SUCH ACTION SHALL HAVE BEEN COMMENCED THE SAME SHALL BE DETERMINED AND THE POSSESSION OF THE PREMISES HEREBY DEMISED SHALL REMAIN IN OR BE RESTORED TO TENANT, LANDLORD SHALL HAVE THE RIGHT, UPON ANY

SUBSEQUENT DEFAULT OR DEFAULTS OR UPON THE TERMINATION OR EXPIRATION OF THIS LEASE, TO BRING ONE OR MORE SUCH AMICABLE ACTION OR ACTIONS TO RECOVER POSSESSION OF THE SAID PREMISES. IT SHALL NOT BE NECESSARY TO FILE THE ORIGINAL LEASE AS A WARRANT OF ATTORNEY, ANY RULE OF COURT, CUSTOM OR PRACTICE TO THE CONTRARY NOTWITHSTANDING.

(viii) The rights and remedies given to Landlord in this Lease are distinct, separate and cumulative remedies; and not one of them, whether or not exercised by Landlord, shall be deemed to be in exclusion of any of the others, and the right to confess judgment in ejectment given in (vii) above may be exercised concurrently and the power of attorney to confess judgment shall not be exhausted by a single confession in each case, but shall be exercised singularly or together from time to time and as often as may be necessary to protect the rights of Landlord and shall survive any expiration or termination of this Lease.

16.3. Landlord shall have the right to seek an injunction, in the event of a breach or threatened breach by Tenant of any of the agreements, conditions, covenants or terms hereof, to restrain the same and the right to invoke any remedy allowed by law or in equity, whether or not other remedies, indemnity or reimbursements are herein provided.

16.4. TENANT UNDERSTANDS IT IS WAIVING IMPORTANT LEGAL RIGHTS BY AGREEING TO THIS PARAGRAPH 16 AND DOES SO IN THIS COMMERCIAL, NON- RESIDENTIAL TRANSACTION KNOWINGLY AND VOLUNTARILY AND AFTER ASCERTAINING THE LEGAL EFFECT HEREOF.

16.5 Landlord shall be in default under this Lease if Landlord breaches any provision of this Lease and that breach remains uncured for a period of thirty (30) days after Tenant has provided written notice to Landlord of the breach, but if that breach cannot reasonably be remedied by Landlord within thirty (30) days after notice of breach, then Landlord shall have additional time as may be reasonably necessary to remedy the breach if during that time Landlord is continuously and diligently pursuing the remedy necessary to cure the breach. In the event of Landlord's default (that remains uncured after applicable notice and cure periods), Tenant shall have the right to pursue all remedies available at law or in equity, except as otherwise agreed to by Tenant under the terms of this Lease.

17. **CONDITION OF PREMISES.** Subject to the Landlord's Work and this Section 17, Tenant shall accept the Premises in its "AS IS," "WHERE IS," and "WITH ALL FAULTS" condition on the Commencement Date. Landlord represents and warrants to Tenant that as of the Commencement Date, the Premises and Common Areas will be in compliance with all applicable laws and the building systems serving the Premises, including but not limited to the building mechanical, electrical, plumbing, lighting, and roofing systems (but excluding all Tenant Improvements, furniture, fixtures and equipment), will be in good working order and consistent with operation of a Class A office building. Except as expressly provided in this Lease, Landlord shall have no obligation to furnish, equip or improve the Premises or the Property.

18. **ASSIGNMENT BY LANDLORD.** Landlord may sell the Property or Landlord's interest therein or assign its interest in this Lease, or any part thereof, in the exercise of its sole discretion.

19. **NOTICES.** Any notice by either party to the other shall be in writing and shall be deemed to have been duly given only if (i) delivered personally or (ii) sent by registered mail or certified mail return receipt requested in a postage paid envelope or (iii) sent by nationally recognized overnight delivery service, if to Tenant, at Tenant's address as set forth above in Section 1(Q); if to Landlord, at Landlord's address as set

forth above in Section 1(Q); or, to either at such other address as Tenant or Landlord, respectively, may designate in writing. Notice shall be deemed to have been duly given, if delivered personally, on delivery thereof, if mailed, upon the actual receipt or refusal of acceptance of the mailing thereof or if sent by overnight delivery service, the next business day.

20. QUALIFICATIONS AS TO USE. Tenant will use the Premises solely for the Permitted Use. Tenant shall not occupy or use the Premises or permit the Premises to be occupied or used for any purpose, act or thing which is in violation of any applicable public law, ordinance, or governmental regulation or which may be dangerous to persons or property, not consistent with a Class A office building, or in violation of any third-party exclusivity rights.

21. TENANT IMPROVEMENTS.

21.1 Scope and Performance of Tenant Improvements. Tenant desires to perform, or cause the performance of, certain leasehold improvement work in the Premises as described on the Final Construction Drawings (below defined) (collectively, as such work shall be identified in the Final Construction Drawings, the "Tenant Improvements"). The Tenant Improvements shall be the responsibility of and performed by Tenant using PJ Dick Incorporated as the general contractor (the "General Contractor"), pursuant to the terms of that certain change order (identified as RCO No. 0111), as modified by that certain Addendum to Change Order, among Landlord, Pennley Park South, Inc., General Contractor and Tenant, dated on or around the date of this Lease (collectively, the "Change Order"). For purposes of this Section 21, the term "Cost of Tenant Improvements" shall mean and include any and all hard and soft costs and expenses associated with the design, engineering, permitting, construction management, and construction of the Tenant Improvements, and including without limitation all labor (including overtime) and materials, and the cost of any and all third-party professionals, any signage and data/telco/wiring costs. Notwithstanding the foregoing, the TI Allowance (as defined below) may not be allocated by Tenant to the purchase of furniture, fixtures, or equipment. During the completion of any Tenant Improvements, Tenant shall be solely responsible for determining what measures, if any, should be taken in order to protect any of Tenant's personnel and Tenant's computers, equipment, furnishings, trade fixtures and other items of personal property for potential damage that may be caused by the performance of the Tenant Improvements. Tenant, for the safety of its employees, agents, and invitees, shall be responsible for ensuring that no Tenant party enters any area in which Tenant Improvements are being completed. Tenant, at its sole costs, is solely responsible for obtaining any and all necessary documents, permits, or other governmental approvals authorizing the completion of the Tenant Improvements.

The Tenant Improvements are anticipated to be completed concurrently with the completion of Landlord's Work (as such term is defined in Section 21.6), pursuant to the Change Order. Notwithstanding that the Tenant Improvements are being completed pursuant to such Change Order to Landlord's existing contract with the General Contractor, the completion of the Tenant Improvements shall be supervised by and be completed at Tenant's sole direction and Landlord shall have no liability for the completion of the Tenant Improvements, the Final Construction Drawings, or otherwise. Landlord's only obligation with respect to the completion of the Tenant Improvements is for the disbursement of the TI Allowance in accordance with the terms and conditions set forth in this Section 21.

21.2 Tenant Improvement Allowance. Subject to the conditions herein, Landlord agrees to provide to Tenant an allowance with respect to the Cost of Tenant Improvements in the total amount not to exceed Two Million Two Hundred Ninety-Five Thousand Four Hundred Eighty and 00/100 Dollars (\$2,295,480.00) (the "TI Allowance"). In no event shall Landlord be obligated to provide any allowance or other contribution related to the completion of the Tenant Improvements in excess of the TI Allowance. The TI Allowance shall be applied to the Cost of Tenant Improvements and shall be payable in accordance with Paragraph 21.5.

21.1 Construction Drawings. After the Effective Date of this Lease, Tenant may, at Tenant's expense (subject to allocation of the TI Allowance), prepare construction drawings depicting the proposed Tenant Improvements ("Construction Drawings") for Landlord's prior written approval; which approval shall not be unreasonably withheld or conditioned by Landlord, and shall be granted or withheld (with reasonable rationale) by Landlord within ten (10) business days of Tenant's request. In the event that Landlord fails to timely approve or disapprove of the Construction Drawings, Tenant shall deliver a second written notice to Landlord for approval. After delivery of the second written notice, Landlord shall grant or withhold approval within ten (10) business days thereafter, failing which the proposed Construction Drawings shall be deemed approved by Landlord. Upon Landlord's approval hereunder, such proposed Construction Drawings shall be deemed to be the "Final Construction Drawings". Tenant hereby acknowledges that, notwithstanding Landlord's approval of the proposed Tenant Improvements, Landlord has made no representation or warranty to Tenant with respect whether the same is acceptable for any governmental approvals and permits or with respect to the design and engineering of any such work.

21.2 Cost of Tenant Improvements. Tenant shall pay for the Cost of the Tenant Improvements; provided however that such responsibility of Tenant hereunder shall be subject to Landlord's application of the TI Allowance in accordance with Section 21.5 hereof.

21.3 Payment of TI Allowance and Excess.

(i) Landlord shall disburse the TI Allowance directly to Tenant's general contractor, engineers, suppliers, and subcontractors in accordance with the respective contracts therefor, for Tenant Improvements completed in the Premises; provided, however that: (A) Tenant shall review each such invoice and acknowledge Tenant's approval of the invoice by signature on each invoice, (B) such installments of the TI Allowance shall be payable by Landlord no more than once per month, and upon at least thirty (30) days' written notice from Tenant; (C) the maximum amount paid by Landlord shall not exceed the TI Allowance specified in Section 21.2, and (D) each such requisition from Tenant shall include:

(1) commercially-reasonable written specifications and corroboration of the scope of, and of all costs incurred by Tenant for, the Tenant Improvements to which such requisition relates; (2) a certificate from Tenant's architect certifying completion of such portion of the Tenant Improvements in substantial accordance with the Final Construction Drawings, which shall be in the standard American Institute of Architects form; (3) a complete list of all contractors, subcontractors, vendors and/or suppliers providing materials and/or labor for such portion of the Tenant Improvements; and (4) mechanics' lien releases from all contractors on account of such portion of the Tenant Improvements (collectively, a "Requisition Request"). Landlord shall not reimburse Tenant for any late payment fees, interest, or other charges that may have been incurred by Tenant. Landlord, upon receipt of a Requisition Request and prior to making payment, shall have the right to inspect the Tenant Improvements and the materials supplied to ensure that such work has been completed in substantial accordance with the Final Construction Drawings. Landlord and Tenant acknowledge that all risk of the costs and expenses of the Tenant Improvements exceeding the Budgeted Amount or TI Allowance shall be Tenant's sole responsibility, subject to Landlord's application of the TI Allowance pursuant to this Section 21. Notwithstanding the foregoing, in addition to other remedies Tenant may have at law or in equity, in the event Landlord fails to timely pay Tenant's general contractor, engineers, suppliers, and subcontractors in accordance with this Section 21.5, then Tenant may, at Tenant's sole discretion, make such payment on behalf of Landlord and offset such amount paid by Tenant against Rent next owing by Tenant.

(ii) In the event that the costs associated with the completion of the Tenant Improvements exceeds the TI Allowance, (A) Tenant shall timely pay all invoices when due and other charges associated with the Tenant Improvements that exceed the TI Allowance and (B) upon receipt of an invoice from the General Contractor or Landlord, Tenant shall make payment directly to the General

Contractor in accordance with the payment terms set forth in the invoice and obtain all applicable mechanics' lien releases identified in Section 21.5(i) above.

(iii) Tenant shall indemnify, defend, and hold Landlord harmless from any damages, injuries, claims, causes of action, and other items arising out of Tenant's completion of the Tenant Improvements, including mechanics' liens, and ensuring compliance with all applicable laws (including the Americans' With Disabilities Act), regulations, and ordinances.

(iv) Intentionally omitted.

21.6 Landlord's Work. Tenant acknowledges that as of the Effective Date of this Lease, Landlord is causing certain base building improvements, shown on Exhibit G, to be completed in the Office Unit at Landlord's sole cost and expense (collectively, the "Landlord's Work"). Landlord shall use commercially reasonable efforts to cause the Landlord's Work to be substantially completed on or before May 1, 2022 (the "Anticipated Completion Date"). Landlord's Work shall be deemed to have been "substantially completed" when a certificate of occupancy or an equivalent approval or certificate is issued by the applicable governmental authority to permit occupancy (including, but not limited to, a temporary certificate of occupancy) of the Demised Premises or the issuance of an AIA G704 (Certificate of Substantial Completion) by the General Contractor and either Tenant's architect or one of Tenant's authorized representatives (as identified in the Change Order), whichever shall occur first. Within three (3) business days after Landlord delivers the Premises to Tenant, Tenant shall deliver to Landlord a list of punch list items. To the extent such items identified by Tenant are included on Exhibit G, Landlord shall correct or cure the punch list items within 30 business days after Landlord receives the punch list, or such longer period as may be necessary, provided Landlord is proceeding with due diligence to complete those items. Upon Tenant's occupancy, Tenant shall execute a Commencement Date Agreement in the form of Exhibit E attached hereto.

If the Commencement Date does not occur by the Anticipated Completion Date, then Tenant shall be entitled to abatement of Rent equal to one day of Fixed Basic Rent for the number of days between the Anticipated Completion Date and the actual Commencement Date, which abatement shall begin in the thirteenth (13th) month of the Lease. Tenant and Landlord each acknowledge and agree that the completion of the Tenant Improvements (as such term is defined in Section 21.1 hereof) shall have no application to the determination of the substantial completion of Landlord's Work. The Anticipated Completion Date shall be extended because of any delay caused by a Tenant Delay or events of Force Majeure. As used herein, "Tenant Delay" shall mean a delay caused by changes, additions or deletions to the Landlord's Work requested by Tenant. Landlord shall, and shall cause its contractors to, work in harmony with and not unreasonably interfere with the performance of the Tenant Improvements in the Premises and Tenant shall and shall cause its contractors to work in harmony with and not unreasonably interfere with the performance of the Landlord's Work in the Premises.

Landlord further agrees to use commercially reasonable efforts to cause construction of the Building to be substantially completed on or before the Anticipated Completion Date and if any work or punch list items related thereto are performed after the Commencement Date, Landlord shall perform such work in accordance with the terms of Section 11.1.

22. HAZARDOUS SUBSTANCES.

22.1. Tenant shall not and shall not cause or allow its employees, contractors or agents to generate, treat, store, or dispose of Hazardous Substances on or near the Property, Premises, or the Office Unit, Tenant shall at all times comply with all applicable Environmental Laws, and Tenant will keep the Premises free of any lien imposed pursuant to any Environmental Laws by reason of breach of any of the

foregoing representations, warranties and covenants. "Hazardous Substances" shall mean (i) any hazardous substance as that term is defined in the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. 9601 et seq., as amended, (ii) any hazardous waste or hazardous substance as those terms are defined in any local, state or federal law, regulation and ordinance applicable to the Property (collectively the "Environmental Laws"), or (iii) petroleum, including crude oil or any fraction thereof. In the event Tenant uses any Hazardous Substances, Tenant shall dispose of such substances in accordance with all applicable federal, state, and local laws, regulations and ordinances. Further, limited quantities of cleaning products and office supplies used or stored at the Premises and required in connection with the routine operation and maintenance of the Premises, and in compliance with all applicable Laws shall be permitted without Landlord's consent.

22.2. Tenant agrees to indemnify, defend and hold harmless Landlord, its employees, agents, successors, and assigns, from and against any and all damage, claim, liability or loss, including reasonable attorneys' and other fees, arising out of or in any way connected to the generation, treatment, storage or disposal of Hazardous Substances by Tenant, or its employees, agents, contractors, or invitees, on or near the Property. Such duty of indemnification shall include, but to be limited to, damage, liability, or loss pursuant to all federal, state and local environment laws, rules and ordinances, strict liability and common law.

22.3. The provisions of this Section 22 shall survive any termination of this Lease or the Term.

23. **CONFIDENTIALITY.** Landlord and Tenant each agree that they shall maintain in confidence and shall not divulge to any third party (except as required by law) any of the terms, covenants and conditions of this Lease, including without limitation, any information related to the rental rate, the length of the Term, any renewal, termination, expansion, contraction or similar options, if any, or the amount of any free rent, improvement allowance or other concessions granted to Tenant by Landlord under this Lease, except to their respective employees, attorneys, auditors, lenders and brokers or as otherwise required by law (including, without limitation, public company reporting requirements). Landlord and Tenant further agree to take commercially reasonable precautions to prevent the unauthorized disclosure of any of such information to any other third parties. Landlord shall not (and shall not permit its broker's or contractors to) use Tenant's name (or make any other reference that may identify Tenant), including without limitation, on websites or marketing materials, without Tenant's prior approval (which may be granted or withheld in Tenant's sole discretion). Landlord's and Tenant's obligations under this Section 23 shall survive termination of this Lease.

24. **VEHICLE PARKING.** During the Term and subject to all terms, conditions, and provisions in this Lease and any rules and regulations adopted by Landlord or any garage operator from time to time, Tenant's occupancy of the Premises will include the use of the Parking Spaces set forth in the Basic Lease Provisions. Tenant will, upon request, promptly furnish to Landlord the license numbers of the cars operated by Tenant and its subtenants, invitees, concessionaires, licensees and their respective officers, agents and employees. If any vehicle of Tenant, or of any subtenant, invitee, licensee, concessionaire, or their respective officers, agents or employees, is parked in any part of the Property other than those portions of the parking area(s) designated for this purpose by Landlord, or if Tenant shall exceed the number of Parking Spaces allocated to Tenant in the Basic Lease Provisions, then, Landlord will promptly notify Tenant who shall immediately comply with the parking requirements herein. Except as set forth below, all parking spaces are unreserved and available to card access users, tenants, invitees, and guests of the Office Unit on a first come, first serve basis. Notwithstanding the foregoing, nineteen (19) parking stalls situated on the ground floor level of the parking garage may be designated for the sole use of the retail tenant(s) in the Office Unit. Tenant's parking rights are the personal rights of Tenant and Tenant shall not transfer, assign, or otherwise convey its parking rights provided herein separate or apart from this Lease.

25. RIGHT OF FIRST REFUSAL. During the Term, Tenant shall have rights of first refusal (the “ROFR Option”) to lease: (a) that certain eastern portion (i.e. S. Euclid Avenue Side) of the second (2nd) floor of the Office Unit, as depicted on Exhibit H-1 (the “2nd Floor ROFR Premises”), and (b) that certain space consisting of the entire fourth (4th) floor of the Office Unit, comprised of a total of approximately 38,258 rentable square feet, as depicted on Exhibit H-2 (the “4th Floor ROFR Premises”) (the 2nd Floor ROFR Premises and 4th Floor ROFR Premises collectively, “ROFR Premises”), upon the terms and conditions set forth in this Paragraph 25. The ROFR Option set forth herein shall be a one-time right for any portion of the ROFR Premises or, as applicable, the entire ROFR Premises, as identified in an Offer (as defined below). For the avoidance of doubt, to the extent the Offer does not include the entire ROFR Premises, Tenant’s ROFR Option shall continue for any other portions of the ROFR Premises not identified in the Offer. Exhibits H-1 and H-2 are incorporated herein by reference.

25.1 Offer Notice. Upon Landlord's receipt of a bona fide offer to lease any portion of the ROFR Premises to an unrelated third-party which Landlord desires to accept (the “Offer”), Landlord shall notify Tenant in writing (“ROFR Notice”), which ROFR Notice shall contain the proposed terms of a supplemental lease between Landlord and Tenant with respect to such space, which shall include the material terms of the Offer, including: (i) the location and square footage of the premises, (ii) the commencement date (the “ROFR Premises Commencement Date”), (iii) the base rent (and increases in or adjustments of base rent), (iv) any provisions relating to additional rent, (v) construction allowances or other concessions, if any; and (vi) lease term.

25.2 2nd Floor ROFR Premises.

A. Exercise During Initial 36 Months. With respect to only the 2nd Floor ROFR Premises, in the event that Landlord receives and delivers an Offer to Tenant for any portion of the 2nd Floor ROFR Premises during the first thirty-six (36) months of the Term and Tenant timely elects to exercise its ROFR Option for such portion of the 2nd Floor ROFR Premises, the portion so taken shall be leased to Tenant on the same terms as set forth herein, including the Fixed Basic Rent per RSF and pro-rata increase in the number of parking stalls allocated for Tenant’s use, however, any rent concession, tenant improvements/allowance, or other concession provided herein shall be reduced on a prorated monthly basis based upon the entire length of the Term and the portion of the Term then remaining. The Termination Fee (as such term is defined in Section 29 hereof) shall be adjusted to include 50% of the Fixed Basic Rent payable for such expansion space for the ninth, tenth and eleventh years of the Term. If Tenant effectively exercises the ROFR Option during the initial 36-month period as provided herein, then Landlord and Tenant shall promptly thereafter enter into a lease amendment amending this Lease to confirm such exercise and reflect the terms and conditions set forth herein and in the ROFR Notice.

B. Exercise After Initial 36 Months. Upon the expiration of the thirty-sixth (36th) month of the Term, Tenant’s exercise of its ROFR Option for any portion of the 2nd Floor ROFR Premises shall be subject to the same terms and conditions as the third-party offer, including, but not limited to, the rental rate, term, and commencement date set forth in the Offer. If Tenant effectively exercises the ROFR Option as provided in this Section 25.2.B., then Landlord and Tenant shall promptly thereafter enter into a supplemental lease agreement confirming such exercise and reflecting the terms and conditions set forth herein and in the ROFR Notice.

25.3 _____ 4th Floor ROFR Premises. With respect to the 4th Floor ROFR Premises, in the event that Tenant elects to lease the 4th Floor ROFR Premises, or any portion thereof, Tenant shall lease the same subject to the same terms and conditions of the third-party Offer as identified in the ROFR Notice, including, but not limited to, the rental rate, term, and commencement date. If Tenant effectively exercises the ROFR Option as aforesaid, then Landlord and Tenant shall promptly thereafter enter into a supplemental

lease agreement confirming such exercise and reflecting the terms and conditions set forth herein and in the ROFR Notice.

25.4 **ROFR Conditions.** The ROFR Option must be exercised, if at all, on and subject to the following terms and conditions: (i) Tenant shall deliver written notice to Landlord not later than ten (10) days following the date of Tenant's receipt of the ROFR Notice, *time being of the essence*; (ii) at the time of exercising the ROFR Option, this Lease shall be in full force and effect and there shall then exist no uncured Event of Default of Tenant; (iii) Tenant shall be in occupancy of the entire Premises, and (iv) Tenant must lease all square footage set forth in the Offer even if greater in size than the ROFR Premises.

25.5 **Termination of ROFR Option; Partial Termination.** If Tenant fails to timely exercise its ROFR Option, Tenant will be conclusively deemed to have elected not to exercise its ROFR Option with respect to that portion of the ROFR Premises identified in the Offer; in which event, the ROFR Option shall no longer apply and is thereafter deemed null and void.

25.6 **Assignment of Lease.** This entire Section 25 shall automatically terminate and become null and void upon the assignment by Tenant of this Lease, in whole or in part, or the sublease by Tenant of all or any part of the Premises (except for a Permitted assignment or Permitted Sublease pursuant to Paragraph 15 herein).

26. **OUTDOOR TERRACE.** During the Term, Tenant shall, at no additional cost, have access to and exclusive use of the second (2nd) floor exterior terrace (the "Terrace"), as depicted on Exhibit E, attached hereto and incorporated herein. Tenant shall not make any alterations to the Terrace or install any fixture or improvements, except as permitted in accordance with Section 10 herein. The use of the Terrace shall be limited at all times to the terms and conditions of the Declaration, applicable law, and pursuant to any reasonable rules and regulations that may be imposed on the exterior terraces, patios, and porches situated in the Office Unit.

27. **SIGNAGE.** Landlord shall install building standard suite signage relating to the Premises and install Tenant's name on the Building directory. Tenant shall not install, paint, display, inscribe, place, or affix any sign, picture, advertisement, notice, lettering, or direction (herein collectively called "Signs") on the exterior of the Office Unit, the common areas of the Office Unit, the interior surface of glass and any other location which could be visible from outside of the Premises without first securing written consent from Landlord therefor, such written consent in Landlord's sole discretion. Any Sign permitted by Landlord in writing, shall at all times conform to all municipal ordinances or other laws, regulations, deed restrictions, and other covenants applicable thereto. Tenant shall remove all Signs at the expiration or other termination of this Lease, at Tenant's sole risk and expense, and shall in a good and workmanlike manner properly repair any damage caused by the installation, existence, or removal of Tenant's Signs. Notwithstanding the foregoing, subject to applicable laws and related approvals, Tenant shall have the right to install one exterior building sign on the Euclid Avenue Façade of the Building in the location shown on the attached Exhibit I, provided, (i) that the total face area of such sign does not exceed 80 square feet, (ii) that all costs and expenses associated with the signage, including permitting, shall be Tenant's sole responsibility, and (iii) Tenant shall obtain all necessary permits and approvals under federal, state, or local laws and regulations and maintain all such approvals during the period in which the signage remains on the Office Unit.

28. MISCELLANEOUS.

28.1. **Lease Binding.** This Lease shall be binding upon and inure to the benefit of Landlord and Tenant and their respective heirs, legal representatives, successors and permitted assigns.

28.2. Payments Due. All amounts owed to Landlord hereunder, for which the date of payment is not expressly fixed herein, shall be paid within thirty (30) days from the date Landlord renders statements of account therefor.

28.3. Eminent Domain. In the event that all or a substantial portion of the Premises or the Property are taken by eminent domain so that the Premises cannot be reasonably used by Tenant for the purposes for which they are demised or, in the reasonable judgment of Landlord, so that the Office Unit cannot be operated as an integral unit (whether or not the Premises are affected), then either party may terminate this Lease by giving written notice of termination to the other party within thirty (30) days after such taking. In the event of any taking by eminent domain, the entire award shall be paid to and retained by Landlord excepting, however, that Tenant may receive therefrom any portion paid on account of Tenant's relocation expenses and construction of leasehold improvements within the Premises.

28.4. Entire Agreement. This Lease and the Exhibits attached hereto contain the entire agreement between Landlord and Tenant concerning the Premises and there are no other agreements, either oral or written. Any agreement hereafter made shall be ineffective to change, modify, discharge or effect an abandonment of this Lease in whole or in part, unless such agreement is in writing and signed by the party against whom enforcement of the change, modification, discharge or abandonment is sought.

28.5. No Waiver. No receipt of money by Landlord from Tenant after the termination of this Lease or Tenant's right of possession of the Premises shall reinstate, continue or extend the Term. The failure or delay of either party to enforce or exercise at any time any of the provisions, rights, or remedies in this Lease shall in no way be construed to be a waiver thereof, nor shall same in any way affect the validity of this Lease or any part hereof, or the right of such party to hereafter enforce each and every such provision, right or remedy.

28.6. Broker. Tenant represents that, except for the brokers, if any, specified in Section 1.Y., Tenant has not dealt with any real estate broker, sales person, or finder in connection with this Lease. Tenant hereby agrees to defend indemnify and hold harmless Landlord, its agents and employees, from and against any and all liabilities and claims for commissions and fees arising out of a breach of the foregoing representation. Unless otherwise agreed by the parties, Landlord shall be responsible for the payment of all commissions to the broker, if any, specified in Section 1.Y., based upon Landlord's separate agreement with such broker. Landlord represents that, except for the brokers, if any, specified in Section 1.Y., Landlord has not dealt with any other real estate broker, sales person, or finder in connection with this Lease. Landlord hereby agrees to defend indemnify and hold harmless Tenant, its agents and employees, from and against any and all liabilities and claims for commissions and fees arising out of a breach of the foregoing representation.

28.7. Force Majeure. Landlord and Tenant shall not be deemed in default with respect to any of the terms, covenants and conditions of this Lease to be performed, if it fails to timely perform same and such failure is due in whole or in part to any event of Force Majeure. "Force Majeure" shall mean strike; lockout; labor trouble (whether legal or illegal); civil disorder; inability to procure material, failure of power and inability or delays to obtain any permits or approvals from governmental authorities, provided that such party has made appropriate and timely orders or requests to suppliers and to governmental authorities; restrictive governmental laws and regulations enacted after the Effective Date; pandemic, epidemic, or quarantine as directed by any Federal, state, or local governmental authorities; riots, insurrection; war; fuel shortages; accidents; casualties; Acts of God; acts caused directly or indirectly by the other party or its agents, employees or invitees; or any other cause beyond the reasonable control of the party who fails to perform (. Notwithstanding anything set forth herein, all payment obligations under and pursuant to the terms and conditions of this Lease shall not be delayed, excused, or otherwise suspended. Such excuse from non-monetary performance shall be effective only to the extent and duration of the event(s) prohibiting

performance and provided that the party has not caused such event(s) to occur and continues to use diligent, good faith efforts to avoid the effects of such event and to perform the obligation.

28.8. Headings and Captions. Paragraph and other captions in this Lease are inserted only as a matter of convenience and in no way define, limit, construe or describe the scope or intent of such Paragraphs or portions thereof.

28.9. Choice of Law. This Lease shall be construed in accordance with the laws of the Commonwealth of Pennsylvania, without regard to conflicts of law principles.

28.10. Limitation of Liability. Notwithstanding anything contained in this Lease to the contrary, the liability of Landlord under this Lease shall be limited to its interest in the Office Unit or any portion thereof and Tenant agrees that no judgment against Landlord under this Lease may be satisfied against any property or assets of Landlord other than the interest of Landlord in the Office Unit as set forth herein. It is expressly understood and agreed by Tenant that none of Landlord's covenants, undertakings or agreements are made or intended as personal covenants, undertakings, or agreements by Landlord or its partners and no personal liability is assumed by, nor at any time may be asserted against, Landlord or its partners or any of its or their officers, agents, employees, legal representatives, successors or assigns, if any, all such liability, if any, being expressly waived and released by Tenant.

28.11. Landlord May Perform Tenant's Obligations. If Tenant fails to timely perform any of its duties under this Lease, Landlord shall have the right (but not the obligation), after the expiration of any grace period elsewhere under this Lease expressly granted to Tenant for the performance of such duty, to perform such duty on behalf and at the expense of Tenant without further prior notice to Tenant, and all sums expended or expenses incurred by Landlord in performing such duty, along with a three percent (3%) service charge, shall be deemed to be additional rent under this Lease and shall be due and payable within thirty (30) days of invoice by Landlord.

28.12. Claims. Tenant waives all claims it may have against Landlord and the Building Manager and their respective agents or employees, for injury or damage to person, property or business sustained by Tenant, its agents, employees or invitees resulting directly or indirectly from the Property, equipment therein, or any part of the Premises becoming out of repair or resulting from any accident within the Property unless due to the negligence or willful conduct of Landlord, Building Manager or their respective agents or employees. This provision shall apply without limitation to damage caused by water, snow, frost, steam, gas, sewer gas or odors, or by the bursting or leaking of pipes or plumbing works or the failure of any appurtenances or equipment. All Tenant's equipment and other personal property belonging to Tenant or any occupant of the Premises that is in or on any part of the Premises or Property shall be there at the risk of Tenant or of such other person only, and Landlord shall not be liable for any damage thereto.

28.13. Remaining Provisions. If any provision of this Lease shall be held to be invalid, void or unenforceable, the remaining provisions hereof shall in no way be affected or impaired and such remaining provisions shall remain in full force and effect.

28.14. Waiver of Trial by Jury. It is mutually agreed by and between Landlord and Tenant that the respective parties hereto shall and they hereby do waive trial by jury in any action, proceeding or counterclaim brought by either of the parties hereto against the other on any matters whatsoever arising out of or in any way connected with this Lease, including but not limited to the relationship of Landlord and Tenant, Tenant's occupancy of the Premises, and any emergency statutory or any other remedy.

28.15. Fees. In the event of any litigation or arbitration between Tenant and Landlord to enforce any provision of this Lease or any right of either party hereto, the non-prevailing party agrees to pay all

costs, charges and expenses, including reasonable fees of attorneys, agents and others retained or employed by the prevailing party in proceedings involving the obligations and undertakings of the parties hereunder, and all costs, charges and expenses incurred in any lawsuit, in which one party causes the other party to become involved or concerned, that are awarded by a court of law. Landlord and Tenant agree that attorneys' fees incurred with respect to defaults and bankruptcy are actual pecuniary losses within the meaning of Section 365(b)(1)(B) of the Bankruptcy Code or any successor statute.

28.16. Lease Recording; Confidentiality. Nothing contained in this Lease shall empower Tenant to do any act which can, shall or may encumber the interest or title of Landlord in and to the Office Unit or the Property upon which the Office Unit is situated. Landlord may not record this Lease or any memorandum of this Lease. Tenant may not record any instrument affecting the Office Unit or the Property upon which the Office Unit is situated in any public office without Landlord's prior written consent. Landlord shall not disclose the terms of this Lease or make any public statements regarding this Lease or Tenant.

28.17 Counterparts; Electronic Execution and Delivery. This Lease may be executed in any number of counterparts, each of which shall be deemed to be an original and all of which, when taken together, shall constitute one and the same agreement. The parties may execute this Lease electronically. Further, electronic copies of the executed copies of this Lease may be delivered to the parties by facsimile transmission or email (including as an attachment in .PDF format) and, upon receipt, shall be deemed originals and binding upon the parties hereto.

28.18 Time of the Essence. Time is of the essence of each provision of this Lease.

29. EARLY TERMINATION OPTION.

29.1 So long as no Default of Tenant has occurred and is continuing at the time Tenant gives Landlord notice exercising the Early Termination Option herein granted or thereafter until the Early Termination Date (unless Landlord in its sole discretion at any time shall elect to waive such condition), Tenant shall have a one-time option (the "Early Termination Option") to terminate this Lease with respect to the entire Premises with such termination to be effective as April 30, 2030 (as applicable, the "Early Termination Date") by giving Landlord written notice of Tenant's election to exercise the Early Termination Option (the "Early Termination Notice") not later than April 30, 2029, *time being of the essence* with respect to the giving of such notice. If Tenant does not timely deliver the Early Termination Notice prior to April 30, 2029, the Early Termination Option shall expire, and Tenant shall have no further right to terminate the Lease.

29.2 Tenant shall pay to Landlord concurrent with the delivery of the Early Termination Notice, a Termination Fee equal to \$2,891,612.67, which amount may be increased in accordance with the terms and conditions herein (the "Termination Fee").

29.3 Time shall be of the essence with regard to Tenant's responsibilities under this Early Termination Option, and in the event that Tenant fails to timely deliver the Early Termination Notice or to timely pay the Termination Fee, such failure shall be deemed a waiver by Tenant of its right to terminate the Lease.

29.4 If Tenant timely and properly exercises the Early Termination Option, Tenant shall vacate the Premises and deliver possession thereof to Landlord in the condition required by the terms of the Lease on or before the Early Termination Date and neither Landlord nor Tenant shall have further obligations under the Lease with respect to the Premises except for those accruing prior to the Early Termination Date and those which, pursuant to the terms of the Lease, survive the expiration or early termination of the Lease.

To the extent that Tenant does not timely vacate the Premises, the Tenant will be deemed to be a holdover Tenant and subject to Paragraph 14 of the Lease. Any purported attempt to terminate the Lease with respect to the Premises, or any portion thereof, that is not in conformity with the terms and conditions as set forth in this Paragraph 29 shall be deemed to be null, void and of no effect.

30. OPTIONS TO EXTEND

30.1 Subject to the terms of this Section 30, Tenant shall have two (2) option(s) to extend the term of this Lease for an additional period of five (5) years (each an "Option Period" and collectively, the "Option Periods"), with each such Option Period to begin upon the expiration of the Term (as the same may have been extended) on the same terms and conditions set forth herein, except that (i) no concessions, abatements or allowances granted with respect to the Term hereof shall be applicable to the Option Period, (ii) Fixed Basic Rent shall be adjusted as set forth in this Section 30 and (iii) Option Period, once exercised, cannot be exercised again.

30.2 Tenant shall provide Landlord with written notice of its desire to extend the Term for an Option Period (the "Extension Notice") not less than 12 months prior to the scheduled expiration of the Term (as the same may have been previously extended by an Option Period) (the "Renewal Deadline"). Failure by Tenant to deliver to Landlord the Extension Notice on or before the Renewal Deadline shall be deemed a conclusive waiver of such option to extend the Term of this Lease. If Tenant shall extend the Term hereof pursuant to the provisions of this Paragraph 30, such notice shall be irrevocable and the extension shall (subject to satisfaction of the Renewal Conditions, as defined in Paragraph 30.6 below, unless waived by Landlord) be automatically effected without the execution of any additional documents, but the parties shall, at either of Landlord's or Tenant's request, execute an agreement confirming the total Fixed Basic Rent for the Renewal Term. Notwithstanding anything to the contrary contained in this Paragraph 30, the failure of the parties to execute any amendment with respect to Tenant's exercise of the Renewal Option shall not be deemed to rescind Tenant's notice of its exercise of the Renewal Option and Tenant shall remain bound by its election under this Paragraph 30.

30.3 If Tenant timely delivers an Extension Notice, Landlord shall deliver to Tenant, within 30 days after receipt of the Extension Notice, notice (the "Rent Notice") of Landlord's determination of the Fixed Basic Rent for the first year of the applicable Option Period (the "Option Period Fixed Basic Rent"), which shall be the then prevailing Fair Market Fixed Basic Rent (defined below) for the Premises. If Tenant does not agree with Landlord's determination, then Landlord and Tenant shall commence negotiations to attempt to agree on each party's determination of the Option Period Fixed Basic Rent within 30 days after Landlord's delivery of its Rent Notice to Tenant. If the parties cannot agree upon the Option Period Fixed Basic Rent by the date that is thirty (30) days following delivery of the Rent Notice, then either party, prior to the date which is sixty (60) days before the commencement of the Option Period, may deliver written notice to the other to request that the Option Period Fixed Basic Rent be determined by appraisal. If neither party timely delivers such request, the Fixed Basic Rent as set forth in the Landlord Rent Notice shall be the applicable rental rate for the Option Period and not subject to further adjustment.

If so elected by either party, the determination of the Option Period Fixed Basic Rent shall be submitted to appraisal as follows: Within fifteen (15) days after one party delivers written notice to the other electing for the Option Period Fixed Basic Rent to be determined by appraisal, Landlord and Tenant shall each give notice to the other specifying the name and address of the appraiser each has chosen. The two appraisers so chosen shall meet within ten (10) days after the second appraiser is appointed and if, within twenty (20) days after the second appraiser is appointed, the two appraisers shall not agree upon a determination of the Option Period Fixed Basic Rent in accordance with the following provisions of this Section 30 they shall together appoint a third appraiser. If only one appraiser shall be chosen whose name and address shall have been given to the other party within such fifteen (15) day period and who shall have the qualifications

hereinafter set forth, that sole appraiser shall render the decision which would otherwise have been made as hereinabove provided.

If said two appraisers cannot agree upon the appointment of a third appraiser within ten (10) days after the expiration of such twenty (20) day period, then either party, on behalf of both and on notice to the other, may request such appointment by the then President of the Real Estate Board (or any similar or successor organization) for the greater Pittsburgh area in accordance with its then prevailing rules. If said President shall fail to appoint said third appraiser within ten (10) days after such request is made, then either party, on behalf of both and on notice to the other, may request such appointment by the American Arbitration Association (or any successor organization) in accordance with its then prevailing rules. In the event that all three appraisers cannot agree upon such Option Period Fixed Basic Rent within ten (10) days after the third appraiser shall have been selected, then each appraiser shall submit his or her designation of such Option Period Fixed Basic Rent to the other two appraisers in writing; and Option Period Fixed Basic Rent shall be determined by calculating the average of the two numerically closest (or, if the values are equidistant, all three) values so determined. Both appraisers or a majority of them (or the sole appraiser, if applicable) shall determine the Option Period Fixed Basic Rent of the Premises for the Option Period and render a decision and award as to their determination to both Landlord and Tenant (a) within twenty (20) days after the appointment of the second appraiser, (b) within twenty (20) days after the appointment of the third appraiser or (c) within fifteen (15) days after the appointment of the sole appraiser, as the case may be.

30.4 If the dispute between the parties as to the Option Period Fixed Basic Rent has not been resolved before the commencement of Option Period based upon determination of such Option Period Fixed Basic Rent, then Tenant shall pay the total Fixed Basic Rent under the Lease based upon the Fixed Basic Rent payable as of the expiration of the Term as escalated by 2% per annum until either the agreement of the parties as to the Option Period Fixed Basic Rent, or the decision of the appraiser(s), as the case may be, at which time Tenant shall pay any underpayment of the Fixed Basic Rent to Landlord, or Landlord shall refund any overpayment of the Fixed Basic Rent to Tenant.

30.5 On the anniversary of the first day of the applicable Option Period, Fixed Basic Rent shall be increased to an amount equal to the product of (a) the Fixed Basic Rent amount in effect immediately prior to that increase, multiplied by (b) 1.02.

30.5 "Fair Market Fixed Basic Rent" shall mean the base rent (exclusive of Additional Rent which shall be paid as provided elsewhere in this Lease) at which a willing landlord would lease comparable premises as the Premises in a comparable building as the Building ("comparable" being determined on the basis of age, square footage, size and existing tenant improvements, furniture, fixtures and equipment, all taken "as is where is" without imposing any artificial schedule of depreciation or artificial schedule of amortization of useful life) to a willing tenant of comparable creditworthiness as the creditworthiness of Tenant as determined on the last day of the Term immediately prior to the commencement of the applicable Option Period and for a lease term commensurate with the Option Period (with effect given to any additional renewal periods set forth in the Lease) commencing on the last day of the then-current Term and that is similar in all material economic and non-economic respects to this Lease. Fair Market Fixed Basic Rent shall not be reduced by reason of any costs or expenses saved by Landlord by reason of Landlord's not having to find a new tenant for the Premises (including brokerage commissions, costs of improvements necessary to prepare the space for such tenant's occupancy, rent concession, or lost rental income during any vacancy period) nor shall it be increased by Tenant's cost of moving or the amount of the unamortized portion of Tenant's alterations. Notwithstanding anything to the contrary herein, the Fair Market Fixed Basic Rent shall not be less than the Fixed Basic Rent for the last month of the Term prior to the commencement of the Option Period as escalated by 2%.

30.6 Renewal Conditions. The “Renewal Conditions” include that, as of the date of the Extension Notice, (i) there shall not exist any Default of Tenant under the Lease which remains uncured beyond any applicable cure period, (ii) the named Tenant, as then set forth in the Lease (including, without limitation, all permitted assigns), shall actually occupy the entire Premises, and (iii) there shall be no allowance or inducements payable by Landlord during the Renewal Term. Landlord, at its sole option, may waive any Renewal Conditions.

31. GENERATOR

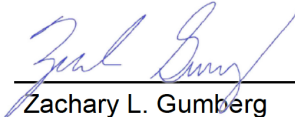
31.1 During the Term Tenant shall have the right, at Tenant’s sole option, cost, and expense, to install one (1) emergency backup generator that is owned by Tenant in a location mutually agreed to by Landlord and Tenant on the Property, subject to Landlord’s approval of Tenant’s plans and specifications for such installation, including, size, applicable required landscaping, and sound mitigation requirements and subject to the terms and conditions set forth in Exhibit J. Landlord shall not unreasonably withhold Landlord’s consent subject to Tenant (a) obtaining Landlord’s prior approval of final plans and specifications; (b) obtaining Landlord’s prior approval of all contractors and subcontractors and their respective contracts; (c) obtaining all permits, approvals, and certificates required by any governmental or quasi-governmental bodies and, upon completion, certificates of final approval and shall deliver promptly duplicates of all such permits, approvals and certificates to Landlord; and (d) prior to occupancy by Tenant and/or commencement of any alterations or improvements by contractors or subcontractors, providing proof of coverage by any contractor by a certificate and/or copy of the policy complying with all insurance requirements set forth herein, as the same may be changed by written notice from Landlord to Tenant from time to time during the Term. Landlord shall either approve or make reasonable detailed comments on any plans and specifications within five (5) business days after delivery of such plans and specifications to Landlord.


32. EXPANSION. During the initial thirty-six (36) months of the Term, Tenant shall have the right to request additional space on the second and fourth floor within the Office Unit from Landlord to the extent space is available. Tenant shall be deemed to agree to lease any such expansion space on the same terms and conditions as this Lease, except that (i) the definition of Premises shall be amended to include the expansion space, (iii) the Fixed Basic Rent payable for the expansion space shall be equal to the per square foot amount of Fixed Basic Rent then payable for the Premises, which shall be subject to adjustment pursuant to Section 1.N, (iv) Tenant’s Proportionate Share of Operating Expenses and Increases in Real Estate Taxes shall be proportionately increased based upon the addition of the expansion space to the Premises, (v) Tenant shall accept the expansion space in its “as is” condition, (vi) Landlord shall provide the same per square foot TI Allowance as was provided for the Premises as a tenant improvement allowance for the expansion space but ratably reduced based on the length of the remaining term after the expansion space is delivered to Tenant for the construction of tenant improvements within the expansion space as approved by Landlord, (vii) Landlord shall provide the same number of parking spaces per square foot of the expansions space that was provided for the Premises, (viii) the term of the Lease shall commence with respect to the expansion space and Tenant shall commence paying Fixed Basic Rent and Additional Rent on the date that is not greater than six (6) months after the delivery of Tenant’s request to expand, and (ix) the Termination Fee (as defined in Section 29) shall be increased by an amount equal to 50% of the Fixed Basic Rent payable for such expansion space for the ninth, tenth and eleventh years of the Term.

**[REMAINDER OF PAGE LEFT INTENTIONALLY BLANK] [SIGNATURE PAGE
FOLLOWS]**

IN WITNESS WHEREOF, the parties have executed this Lease on the day and year set forth above.


LANDLORD: WITNESS:
5704 PENN OFFICE, LLC

By: 
Name: Zachary L. Gumberg
Title: Member



TENANT:
DUOLINGO, INC. 

By: _____
Name: Luis von Ahn
Title: CEO and co-founder

WITNESS: 

Denis J. Meinert

EXHIBIT A PREMISES

- Initial Premise
- Outdoor Terrace
- ROFR Area



OFFICE L3

NOT TO SCALE

mv+a

LG
LG REALTY ADVISORS

duolingo LIBERTY east

141 S. ST. CLAIR ST., PITTSBURGH PA

DATE 10/08/2021

L.03

*Area are approximate and subject to change.

EXHIBIT B

TAX AND OPERATING EXPENSES RIDER

(1) Operating Expenses Escalation. "Operating Expenses" means all costs, expenses, and disbursements of every kind, nature or description (including, but not limited to, a fee for management of the Property) and shall include all costs, expenses and fees incurred by Landlord in connection with or attributable to the operation and management of the Property, including, but not limited to the following items:

(i) all costs, expenses and fees associated with or attributable to the management, operation, repair, maintenance, improvement, alteration and replacement of the Property, or any part thereof;

(ii) the cost of repairs and general maintenance of the Property, including, but not limited to, trash disposal, janitorial services, pest control, landscaping maintenance, lawn mowing, gardening, irrigation of landscaped areas, line painting, uniforms, pavement maintenance, sweeping, and sanitary control, and the costs of exterior painting of the Property and interior painting of the Common Areas, including the agreements relating thereto;

(iii) the cost to maintain, repair, replace, and operate the fire protection systems, fire extinguishers, fire hoses, security systems, remote guarding systems, and protective services for the Office Unit;

(iv) the costs for the installation and maintenance of Common Areas and exterior lighting in the Property;

(v) the cost of all insurance purchased by Landlord, which Landlord reasonably deems appropriate, including any rent loss or liability insurance, and the cost of deductibles paid on claims made by Landlord for the Property;

(vi) the cost of water, sewer, gas, electricity, air conditioning, and all other utilities paid by Landlord and not billed to any tenant(s), and the cost of maintaining the systems supplying the same;

(vii) the cost of labor, salaries and applicable fringe benefits for property manager and personnel supporting such property manager incurred by Landlord in the operation, maintenance, security, and/or access control of the Property (to the extent that persons are engaged with respect to more than one building, wages and salaries relating to such persons shall be equitably apportioned between all such buildings based upon Landlord's reasonable estimate of time spent by each such person on each building relative to their total time on all buildings);

(viii) the cost of materials, supplies and tools used in managing, maintaining and/or cleaning the Property;

(ix) the cost of accounting fees, management fees, legal fees and consulting fees attributable to the operation, management, maintenance and repair of the Property plus the cost of any space occupied by the property manager and/or leasing agent;

(x) the cost of operating, replacing, modifying and/or adding improvements or equipment to the Property mandated by any law, statute, regulation or directive of any governmental agency and any repairs or removals necessitated thereby;

(xi) payments made by Landlord under any easement, license, operating agreement, declaration, condominium declaration, restrictive agreements, restrictive covenant, reciprocal agreements, or instrument pertaining to the payment or sharing of maintenance and repair costs among property owners;

(xii) any business property taxes or personal property taxes imposed upon the fixtures, machinery, equipment, furniture and personal property used in connection with the operation of the Property (to the extent that such fixtures, machinery, equipment, furniture or personal property is engaged with respect to more than one building, such taxes relating to such items shall be equitably apportioned between all such buildings relative to their total use on all buildings);

(xiii) the cost of all business licenses, including Business Professional and Occupational License Taxes and Business Improvements Districts Taxes, any gross receipt taxes based on rental income received by Landlord, business privilege taxes, commercial rental taxes or any similar taxes or fees; and

(xiv) the cost of any other service provided by Landlord or any cost that is elsewhere stated in this Lease to be an "Operating Expense".

Notwithstanding anything to the contrary, any expenses or costs for capital improvements or expenditures shall be amortized over their useful life per GAAP principles. Tenant shall pay its pro rata share of the annualized amortized amount beginning in the year such improvements were incurred/placed into service.

"Operating Expenses" shall not include the following:

(a) costs incurred to procure or negotiate leases with any existing or prospective tenants, including, without limitation, the costs of tenant improvement renovations pursuant to any "Work Letter";

(b) leasing commissions and fees;

(c) expenses for which Landlord actually receives reimbursed from any tenant, or under the terms of any insurance policy, warranty, or condemnation award;

(d) depreciation, interest and principal payments on mortgages and other indebtedness related to the Office Unit and on any personal property used in connection therewith;

(e) legal fees, judgments, settlements, costs and expenses to compel full performance or disputes with any lender or under leases with all prior, existing and prospective tenants, in connection with the sale of any portion or developmental rights of the Office Unit/Property or Landlord, or bankruptcy of Landlord;

(f) the cost of any repair to remedy damage caused by or resulting from the negligence of any other tenants, including their agents, servants, employees or invitees, together with the

costs and expenses incurred by Landlord in attempting to recover such costs and where reimbursement is actually received;

(g) advertising and promotional expenditures;

Landlord;

(h) any compensation paid to employees, attendants, or other persons in commercial concessions operated by

(i) electric power and other utility costs for which any tenant (including Tenant) directly contracts with a public service company;

(j) costs of capital improvements to the Office Unit, except that Operating Expenses shall include (i) the cost of any capital improvement, amortized with interest over the useful life of such capital improvement, which reduces any component cost included within Operating Expenses, (ii) if Landlord shall lease any capital improvement described in clause (i), above, all rental and other payments made under such lease, and (iii) the cost of any capital improvements, amortized with interest over the useful life of such capital improvement, made to keep the Office Unit in compliance with applicable governmental laws, ordinances, rules and regulations (including, but not limited to The Americans with Disabilities Act) that are effective after the Commencement Date;

or the Office Unit;

(k) costs of constructing and installing or reconstructing the Common Areas

(l) interest and penalties on any Operating Expenses, except to the extent incurred as a result of a default by tenant in its obligation to make timely payments Additional Rent; and

(m) the cost of Real Estate Taxes, as defined in Section 3 of Exhibit B herein, assessments, and governmental or other charges, general or special, foreseen or unforeseen, which are levied, assessed, or otherwise imposed against the Property.

Nothing contained in this Section shall imply any duty on the part of Landlord to pay any expense or provide any service not otherwise imposed by the express terms of this Lease.

(2) Expenses Adjustment. Tenant shall pay as Additional Rent for each Lease Year an amount (the "Expense Adjustment Amount") equal to Tenant's Proportionate Share of the increase in Operating Expenses for such Lease Year over the Base Year for Operating Expenses, and if the Term shall terminate on a date other than December 31, the Expense Adjustment Amount for the last Lease Year of the Term shall be an amount equal to Tenant's Proportionate Share of the increase in Operating Expenses for the full calendar year in which the Term ends multiplied by a fraction, the numerator of which shall be the number of months and partial months during such calendar year which coincide with the Term, and the denominator of which shall be twelve.

(3) Tax Escalation. If the Real Estate Taxes for any Lease Year or Partial Lease Year during the Term will be greater than the Real Estate Taxes Base Year (adjusted proportionately to correspond to the duration of periods less than a Lease Year), then Tenant will pay to Landlord as Additional Rent, Tenant's Proportionate Share of the Increases in Real Estate Taxes.

As used herein, the term "Real Estate Taxes" shall include any form of real estate tax or assessment, general, special, ordinary or extraordinary, improvement bond or bonds imposed on the Property or any portion thereof, foreseen or unforeseen, by any authority having the direct or indirect power to tax, including any city, county, state or federal government, or any school, agricultural, sanitary, fire, street, drainage or

other improvement district thereof, as against any legal or equitable interest of Landlord in the Property. If due to a future change in the method of taxation, any franchise, income or profit tax will be levied against Landlord in substitution for, or in lieu of, or in addition to, any tax which would otherwise constitute Real Estate Taxes, such franchise, income or profit tax will be deemed to be Real Estate Taxes for purposes of this Lease (to the extent that such taxes would be payable if the Property was the only property of Landlord subject to such tax). Real Estate Taxes and Operating Expenses shall not include any income tax (or tax that is a successor thereto) or any excess profit, franchise, capital stock, estate or inheritance tax or gift tax, except as specifically provided in the preceding sentence. Any special assessments/tax and extraordinary charges shall be allocated over the maximum term allowed by law and shall include the interest charge for such allocation, and Tenant shall only be responsible to pay Tenant's Proportionate Share of the amortized portion as it is amortized during the term of the Lease in the year such assessment is actually paid after deducting abatements, rebates or refunds, if any.

From time to time Landlord may challenge the assessed value of the Property as determined by applicable taxing authorities and/or Landlord may attempt to cause the Real Estate Taxes to be reduced. If Landlord, in Landlord's commercially reasonable discretion, seeks to cause the Real Estate Taxes to be reduced, defends against any taxing agencies appeal seeking to increase the Real Estate Taxes, or in obtaining a refund, rebate, credit or similar benefit, all costs incurred by Landlord shall be considered an Operating Expense.

(4)Electrical Charge. From and after the Commencement Date, Tenant shall pay to Landlord the cost for the actual electricity charges incurred in the operation of the Premises based on the submeter for the Premises or other building management system's calculation of electrical consumption within the Premises. Tenant shall pay for the first month of the Term, an estimated amount equal to \$1.50 per rentable square foot, per annum, and for each month thereafter during the Term, Tenant shall pay the actual charges associated with Tenant's use of electricity within the Premises upon receipt of an invoice from Landlord. As soon as practicable after each Lease Year or Partial Lease Year, Landlord will give Tenant a statement (the "Electric Statement") showing the actual amounts payable by Tenant under this Rider during such Lease Year. If the Electric Statement shows that the actual amount Tenant owes for such Lease Year or Partial Lease Year is less than the estimated amount paid by Tenant during such Lease Year or Partial Lease Year, Landlord, at its option, will either return the difference or credit the difference against the next succeeding payment(s) of the monthly electric charge, provided a sufficient number of months remain in the term to exhaust the amount owed. If the Electric Statement shows that the actual amount Tenant owes is more than the estimated electrical charge paid by Tenant during such Lease Year or Partial Lease Year, Tenant will pay the difference after the following month from when the Electric Statement is delivered to Tenant. Upon request, the Landlord will provide the Tenant copies of its electrical bills.

(5)Lease Year. As used in this Lease, the defined term "Lease Year" will mean a calendar year. Any portion of the Term which is less than a Lease Year, that is, from the Commencement Date through the following December 31, and from the last January 1 falling within the Term to the end of the Term, will be deemed a "Partial Lease Year". Any reference in this Lease to a Lease Year will, unless the context clearly indicates otherwise, be deemed to be a reference to a Partial Lease Year if the period in question involves a Partial Lease Year.

(6)Payment of Operating Expenses. For purposes of estimating an increase in Tenant's Proportionate Share of Operating Expenses and Real Estate Taxes during each subsequent calendar year, Landlord shall estimate the increase in Tenant's Proportionate Share for the ensuing calendar year, or, if applicable, the remaining portion thereof and notify Tenant in writing of such estimate. Such estimate shall be made by Landlord in the exercise of its sole reasonable discretion and not subject to arbitration. Landlord's estimate shall be paid by Tenant each month during the Term of the Lease, on the same day as the Fixed Basic Rent is due hereunder. As soon as practicable after each Lease Year or Partial Lease Year, Landlord will give

Tenant a statement (the "Statement") showing the actual amounts payable by Tenant under this Rider for such Lease Year. If the Statement shows that the actual amount Tenant owes for such Lease Year or Partial Lease Year is less than the estimated amount paid by Tenant during such Lease Year or Partial Lease Year, Landlord, at its option, will either return the difference or credit the difference against the next succeeding payment(s) of Rent, provided a sufficient number of months remain in the term to exhaust the amount owed. Notwithstanding the foregoing, in no event shall Tenant receive any reimbursement for a reduction in Operating Expenses below the Base Year for Operating Expenses. If the Statement shows that the actual amount Tenant owes is more than the estimated Additional Rent paid by Tenant during such Lease Year or Partial Lease Year, Tenant will pay the difference after the following month from when the Statement is delivered to Tenant as Additional Rent.

(7)Audit. During the Lease Term, but not more than one (1) time per year, Tenant, at its sole cost and expense (except as provided below) shall have the right to cause Landlord's books and records with respect to Operating Expenses and Real Estate Taxes to be audited by an independent certified public accountant of Tenant's choosing. Tenant shall deliver notice of the request to audit Landlord within one hundred twenty

(120) days after delivery of the Landlord Statement. Landlord shall cause such books and records to be made available for such inspection during such normal business hours as are prescribed by Landlord and at such location where Landlord regularly keeps its books and records (or by using computer technology available to Landlord at no additional cost), upon ten (10) business days' prior notification to Tenant. If, at the conclusion of Tenant's audit, such expenses for the preceding year indicates that Tenant made an overpayment to Landlord for such preceding year, Landlord shall (a) credit such amount to Tenant's subsequent payments of Rent, or if the Lease has expired, and no default exists under the Lease, remit the amount of such overpayment to Tenant within thirty (30) days after receipt of notice from Tenant of the amount of such overpayment and (b) if the actual Operating Expenses allocable to the Premises are overstated by more than 5%, Landlord shall reimburse Tenant for the actual, reasonable out-of-pocket costs of such audit not to exceed a maximum amount of \$4,500.00. If, at the conclusion of the audit, such audit reveals an underpayment by Tenant, Tenant will remit the amount of such underpayment within thirty (30) days of Tenant becoming aware of such underpayment. Should Landlord disagree with the results of Tenant's audit, Landlord and Tenant shall refer the matter to a mutually acceptable independent certified public accountant, who shall work in good faith with Landlord and Tenant to resolve the discrepancy. Landlord's books and records and the results of any such audit are to be kept strictly confidential and are not to be made available or published to any third party, unless required by any applicable legal requirement or governmental authority. The auditor employed by the Tenant shall not provide for any compensation based or measured in any way upon any savings in additional rent or reduction in Operating Expenses allocable to the Premises achieved through the inspection process described in this Paragraph and shall be paid on an hourly-basis, or similar form of compensation.

(8)Occupancy Adjustment. If the Office Unit is less than ninety-five percent (95%) occupied during the Base Year for Operating Expenses or during any Lease Year or Partial Lease Year subsequent to the Calendar Year, then the Operating Expenses will be adjusted during any such Lease Year or Partial Lease Year so as to reflect ninety-five percent (95%) occupancy. The aforesaid adjustment will only be made with respect to those items that are in fact affected by variations in occupancy levels.

EXHIBIT C

RULES AND REGULATIONS

General Rules

1. Compliance with Laws. Tenant shall not suffer or permit the Premises or any part thereof to be used in any manner, or suffer or permit anything to be done therein, or suffer or permit anything to be brought into or kept therein, which may in any way (i) violate any of the provisions of any Lease or Mortgage (as those terms are defined in the Lease) of which Tenant has actual knowledge or the rules, statutes, ordinances or requirements of any governmental or quasi-governmental authority having or claiming jurisdiction, (ii) invalidate or increase the amount of premiums for any policy of insurance affecting the Office Unit, (iii) be dangerous to persons or property, (iv) constitute a public or private nuisance, (v) impair, in the sole reasonable opinion of Landlord, the appearance, character or reputation of the Office Unit, (vi) discharge objectionable fumes, vapors or odors into the Office Unit or the Office Unit air conditioning system or into the Office Unit flues or vents not designed to receive them or otherwise in such manner as may offend the occupants of the Office Unit, (vii) impair or interfere with any of the Office Unit services or the proper and economic heating, cleaning, air conditioning or other servicing of the Property, Office Unit or the Premises or impair or interfere with or tend to impair or interfere with the use of any of the other areas of the Property or Office Unit by, or occasion discomfort, annoyance or inconvenience to, Landlord or any of the other tenants or occupants of the Office Unit, any such impairment or interference to be in the sole judgment of Landlord, or (viii) increase the pedestrian traffic in and out of the Premises or the Office Unit above ordinary reasonable level.

2. Signage. The listing of any name other than that of Tenant or its subtenants, whether on the doors of the Premises, on the Office Unit directory, or otherwise, shall not operate to vest any right or interest in this Lease or in the Premises or be deemed to be the written consent of Landlord, it being expressly understood that any such listing is a privilege extended by Landlord and is revocable at will by written notice to Tenant.

3. View from outside Premises. No objects shall be placed against glass partitions, doors or windows which would be unsightly from the Office Unit's corridors or from the exterior of the Office Unit.

4. Animal, Pets, and Bicycle Parking. Except as otherwise provided in the Lease, no animals, pets, or modes of transportation shall be brought or permitted to be in Office Unit or the Premises. Notwithstanding the foregoing, bicycles may be stored in areas designated by Landlord within the Office Unit from time to time for bicycle parking.

5. Solicitation. Room to room canvasses to solicit business from other tenants of the Office Unit are not permitted.

6. Waste. Tenant shall not waste electricity, water or air conditioning services. All controls shall be adjusted only by authorized building personnel. Tenant shall not utilize the Premises in any manner that would overload the standard heating, ventilating, or air conditioning systems of the Office Unit. Tenant shall not open or permit to be opened any windows in the Premises. Tenant shall not permit the use of any apparatus for sound production or transmission in such manner that the sound so transmitted or produced shall be audible or vibrations therefrom shall be detectable beyond the Premises. Tenant shall not utilize any electronic, radio wave, microwave or other transmitting, receiving, amplification or magnetic device that would disturb or interfere with any other tenant of the Office Unit or the operation of the Office Unit generally. Tenant shall keep all electrical and mechanical apparatus free of vibration, noise, magnetic

fields, and air waves which may be transmitted beyond the Premises, it being understood and permitted that Tenant has a wireless network.

7. Corridor Access. All corridor doors shall remain closed at all times.

8. Additional Locks. No additional locks or similar devices shall be attached to any door or window without Landlord's prior written consent. No keys for any door other than those provided by the Landlord shall be made. If more than two (2) keys for one (1) lock are desired, Landlord will provide the same upon payment by Tenant of the reasonable cost therefor. All keys must be returned to Landlord at the expiration or termination of this Lease. It is understood and permitted that Tenant install and maintain a keycard access control system with associated locking mechanisms. Tenant shall provide Landlord with a keycard to access any locked or area with restricted access to be utilized in the event of an ongoing emergency for the safety of Tenant and the Office Unit.

9. Tenant Responsibilities. Tenant assumes full responsibility of protecting the Premises from theft, robbery and pilferage. Except during Tenant's normal business hours, Tenant shall keep all doors to the Premises locked and other means of entry to the Premises closed and secured.

10. Tenant Equipment. Only equipment or mechanical devices of a nature directly related to Tenant's ordinary use of the Premises shall be installed, placed, or used in the Premises and the installation and use of all such equipment and mechanical devices is subject to the other rules contained herein and the other portions of this Lease. Unless Landlord gives advance written consent, Tenant shall not install or operate any steam or internal combustion engine, boiler, machinery, refrigerating or heating device or air conditioning apparatus in or about the Premises, or carry on any mechanical business therein. Tenant shall not install any supplemental air conditioning unit(s) within the Premises, including, but not limited to, Tenant's IT / telecom room, without Landlord's prior written consent.

11. Cleaning and Repairs. All cleaning, repairing, janitorial, decorating, painting or other services and work in and about the Premises shall be done only by authorized Office Unit personnel.

12. Floor Loading. Tenant shall not overload any floor or exceed the floor load capacity for which any such floor was designed or allowed by law to carry. Safes, furniture, equipment, machines and other large or bulky articles shall be brought to the Office Unit and into and out of the Premises at such times and in such manner as Landlord shall direct (including the designation of elevator) and at Tenant's sole risk and cost. Prior to Tenant's removal of such articles from the Office Unit, Tenant shall obtain written authorization from Landlord's agent and shall present such authorization to the designated employee of Landlord.

13. Tenant Damage. Tenant shall not in any manner deface or damage the Office Unit or Property.

14. No Residential / Overnight Use. Tenant shall not use the Premises for housing accommodations or lodging or sleeping purposes or do any cooking therein (except for the use of a microwave or barista preparation of coffee products), or use any illumination other than electric light, or use or permit to be brought into the Office Unit any inflammable fluids such as gasoline, kerosene, naphtha, and benzene, or any explosives, radioactive materials, carcinogens or other articles deemed extra hazardous to life, limb or property.

15. Labor Conflicts. Tenant shall not contract for any work or service which might involve the employment of labor incompatible with the Office Unit employees or employees of contractors doing work or performing services by or on behalf of Landlord. Tenant shall take no action which would violate any

of Landlord's contracts affecting the Office Unit, or which would create or contribute to any work stoppage, strike, picketing, labor disruption or dispute, or which would interfere, in any way, with the business of Landlord or any other tenants of the Office Unit or with the rights and privileges of any invitees, licensees, employees or any other persons lawfully in and upon the Office Unit, or which would cause any impairment or reduction of the good will and reputation of the Office Unit.

16. Roof and Basement Access Restrictions. Neither Tenant nor any of its agents, employees, contractors, workmen, visitors or guests shall enter into or go upon roof or basement or other restricted areas of the Office Unit, including all storage, heating, ventilation, air conditioning, mechanical or elevator machinery housing areas, unless Tenant receives written approval from Landlord to access the same, which shall be in the Landlord's sole reasonable discretion, and subject to being accompanied by Landlord and/or Landlord's roofing contractor. Any such access may be denied if the requested access has the potential to void or otherwise impact any existing warranties held by Landlord.

17. No Solicitation. Tenant shall not distribute literature, flyers, handouts or pamphlets of any type in any of the common areas of the Office Unit, without the prior written consent of Landlord.

18. No Food Preparation. Tenant shall not cook, otherwise prepare, except for the use of a microwave, or sell any food or beverages in or from the Premises.

19. Odors. Tenant shall not permit objectionable odors or vapors to emanate from the Premises.

20. Hall Access. The halls, passages, exits, entrances, elevators, and stairways shall not be obstructed by Tenant or used for any purpose other than for ingress to and egress from its Premises. The halls, passages, exists, entrances, elevators, stairways and roof are not for the use of the general public and the Landlord shall in all cases retain the right to control and prevent access thereto by all persons whose presence, in the judgment of Landlord, shall be prejudicial to the safety, character, reputation and interests of the Office Unit and its tenants, provided that nothing herein contained shall be construed to prevent such access to persons with whom Tenant normally deals in the ordinary course of Tenant's business unless such persons are engaged in illegal activities.

21. Loading. All loading/unloading shall occur within area(s) identified by Landlord for the use by the tenants of the Office Unit and subject to all supplemental rules and regulations adopted by Landlord from time to time. Tenant shall coordinate with Landlord or the Office Unit's property manager to schedule loading or unloading and use of the freight elevator or other elevators that may designated for such use.

22. Refuse. Tenant shall, at Tenant's cost, provide trash bins or other adequate garbage disposal containers within the Premises for the interim disposal of all of its trash, garbage, and waste. All such trash, garbage, and waste temporarily stored in the Premises shall be stored in such a manner so that it is not visible from outside of the Premises and otherwise in a manner consistent with Class A buildings. Tenant shall keep the Premises in a clean, safe, and neat condition free and clear of all of Tenant's trash, garbage, and/or waste at all times. In no event shall Tenant dispose of any trash, garbage, or waste in any Common Area or other location within the Property, except as may be directed by Landlord from time to time.

EXHIBIT C-1

Dog Policy Rules and Regulations

Notwithstanding anything to the contrary in the Office Unit Rules and Regulations, Tenant shall be permitted to allow dogs within the Demised Premises, subject to the rules and regulations set forth herein, as may be modified by Landlord from time to time upon notice to Tenant, and in accordance with all applicable Federal, State, and local laws, regulations, ordinances, and statutes.

Tenant is responsible for assuring the health and safety of all employees. In keeping with this objective, Tenant has formulated a policy, provided below, balancing these concerns with the desire to promote a positive employment experience by allowing appropriate dogs in the office. A dog may be allowed in the office if its health and behavior are acceptable within an office setting, and if it does not adversely affect office operations within the Demised Premises or Office Unit.

Tenant shall be solely responsible for and shall reimburse Landlord for any and all increased costs associated with access to the Office Unit and use of the Demised Premises by any dog. Any damage to the Office Unit and / or Demised Premises resulting from a dog shall be repaired promptly by Tenant. Tenant hereby agrees to indemnify, defend, and hold Landlord harmless from and against any and all claims, liabilities, causes of action, or demands in connection with any accident, injury (including biting), or damage whatsoever caused to any person or property resulting from any dog brought to the Office Unit by a Tenant employee, invitee, guest, contractor, or other related party, including, but not limited to, all cost, expenses and liability, including reasonable attorneys' fees, incurred in connection with any such claim or proceeding brought thereon.

Tenant shall ensure that in the event of the release of any waste or excrement by a dog within the Office Unit the same shall be immediately cleaned by Tenant. All dogs shall be leashed except when the dog is inside the Demised Premises. Upon request by Landlord, Tenant shall provide to Landlord with evidence of the current vaccinations of any dogs that will be accessing the Demised Premises.

Tenant shall require that each employee, prior to bringing their dog on the Office Unit, shall execute Landlord's standard waiver and acknowledgement form. Tenant shall provide a copy of the executed waiver to Landlord upon execution (which may be delivered electronically).

Tenant Dog Policy Regulations. Tenant has enacted the following policies for dog-friendly workspaces, which policy, as may be amended from time to time by Tenant, shall, in addition to rules and regulations of Landlord, be followed by Tenant during the Term.

- **Before bringing your dog to Duolingo, ensure that the office is a safe environment for them and other Duo-dogs**
 - Do they have all relevant vaccinations? Are they healthy?
 - Sick Duos should stay home, and so should sick Duo-dogs!
 - Duo-dogs should be up to date on vaccinations.
 - Are they comfortable being in an office environment around other dogs and lots of people?
 - Unsure if your dog will be comfortable at Duolingo? Try bringing them to the office during evenings/weekends first!
 - In Pittsburgh, coordinate with other dog-owners when you bring your dog to the office using #office-dogs-pgh. We'd like to keep it to a max of 10 dogs per day.
- **Be considerate to those sitting near your Duo-dog**

- Ask those sitting near you if they have dog allergies! If someone who sits near you has dog allergies, please consider bringing your dog in on a day when that person is working from home and/or sit somewhere else for the day.
- Be sensitive that some Duos are afraid of dogs (even little pups).
- Give those around you a heads up beforehand so everyone can plan accordingly.
- All dogs must be leashed and supervised at all times in the common areas. Do not let your dog wander unattended.
- You are encouraged to sit in a breakout space with your dog to diminish distraction if necessary.
- Is it appropriate to bring your dog to the office daily?
 - Ensure that you're coordinating with other dog owners on a daily basis in the #office-dogs-pgh Slack channel
 - Ensure that you have confirmed with those who sit around you that your dog is not a distraction and/or disruptive in any other way.
- **Non-Duolingo employees should not bring their dogs to the office**
 - We want to guarantee the health & safety of our Duos & Duo-dogs, so non-Duo- dogs should stay out of the office.
- **Duo-dogs should be housebroken**
 - Everyone has accidents, but if it's a recurring problem, or you are still house training your dog, please consider keeping them at home.
 - If your dog has an accident, **you** are responsible for cleaning it up.
- **Duo-dogs must stay out of sensitive areas of the office**
 - Specifically, the commercial kitchen and construction space. This is for the safety of our Duo-dogs and the kitchen staff!
 - In Pittsburgh, do not bring dogs to the roof.
 - Keep dogs off of the furniture.

Landlord reserves the right to terminate the rights granted in this Exhibit C-1 if Tenant repeatedly fails to enforce the provisions set forth in the Lease and Exhibit C-1, made in Landlord's good faith determination, after written notice and opportunity to cure,.

EXHIBIT C-2

Food Preparation Rules and Regulations

Notwithstanding anything to the contrary in the Lease or the Rules and Regulations and to extent permitted by Applicable Laws, Tenant may use a portion of the Demised Premises for the operation of one commercial kitchen and dining area (collectively, the "Kitchen"), for the exclusive use of Tenant's employees, visitors, and invitees. Tenant shall not sell any food or beverages in or from the Demised Premises at any time and/or serve any food and beverages in or from the Demised Premises at any time to other tenants or occupants of the Office Unit or Building (or their employees) or to members of the general public. No cooking odors shall be emitted from the Demised Premises other than through ventilation equipment and systems installed therein to service the Kitchen in accordance with the Lease and this Exhibit C-2.

If Tenant elects to exercise its right to operate the Kitchen, Tenant shall give Landlord prior notice thereof and shall submit to Landlord (i) construction ready plans and specifications for the Kitchen (including, any cooking, ventilation, air conditioning, grease traps, kitchen and other equipment in or for the Demised Premises with respect to the Kitchen) for Landlord's review and approval (such submission, review and approval shall be governed by Section 10 of the Lease, however, Landlord's period to review such plans shall be extended to a period of thirty (30) days), and (ii) all necessary consents, approvals, permits or registrations, required for the construction and operation of the Kitchen in accordance with applicable laws (including, without limitation, any necessary approvals from the applicable health and/or fire departments, permits required in connection with any venting or other air-removal/circulation system, and any required fire-suppression systems). All such Alterations (or Improvements) shall be approved by Landlord and installed and constructed at Tenant's sole cost and expense in accordance with Section 10 of this Lease. The Kitchen and the Kitchen facilities therein shall be maintained and operated by Tenant, at Tenant's sole cost and expense: (a) in first-class order, condition, and repair; (b) consistent with the character of the Office Unit as a first-class office building; and (c) in compliance with all applicable laws, such reasonable rules and regulations as may be adopted by Landlord from time to time, and the other provisions of the Lease. Tenant shall pay for all cleaning costs incurred by Landlord in cleaning any affected portions of the Building, Office Unit, or Demised Premises resulting from Tenant's operation of the Kitchen, including the disposal of food and cooking wastes. In addition, Tenant shall pay for all actual and reasonable out-of-pocket increased costs incurred by Landlord with respect to the management, operation, maintenance, and repair of the Office Unit resulting from Tenant's operation of the Kitchen, within thirty (30) days of receiving an invoice therefor. Tenant shall have the right to remove all equipment and alterations relating to the Kitchen at the end of the Term at Tenant's sole cost and expense, provided that Tenant shall make any repairs resulting from such removal.

Tenant shall cause to be provided pest eradication and control services, as required by Landlord in its reasonable discretion, with respect to the Kitchen. All trash generated from Tenant's Kitchen shall be stored in covered containers to prevent the emission or emanation of odors from the Kitchen, shall be sealed in double plastic bags (or otherwise sealed in a manner prescribed by or reasonably acceptable to Landlord), and shall be deposited by Tenant daily (or more often if required by Landlord in its reasonable discretion) in the area of the Office Unit or Building reasonably designated by Landlord from time to time. If Landlord reasonably determines that additional trash removal from the Office Unit shall be required as a result of Tenant's trash generated from the Kitchen, due to the fact that such trash is materially in excess of that generated by normal office use, then Tenant shall pay to Landlord, within thirty (30) days after billing and as Additional Rent, the actual and reasonable out-of-pocket cost of any such additional trash removal from the Office Unit (including, without limitation, the cost of the acquisition, operation and maintenance of any

equipment or other property which is acquired to facilitate such additional trash removal), all as reasonably determined by Landlord.

If Tenant fails to comply with the requirements set forth in this Exhibit C-2, without limitation of Landlord's other remedies, and fails to cure the same within thirty (30) days after written notice from Landlord, Landlord shall have the right to terminate Tenant's rights under this Exhibit C-2. The rights contained in this Exhibit C-2 shall be personal to Tenant and may only be exercised by Tenant (and not any other assignee, sublessee, or other transferee of original Tenant's interest in this Lease, except for a Permitted Assignment or Permitted Sublease pursuant to Paragraph 13 of the Lease).

Tenant may retain a third party to operate the Kitchen (a "Third-Party Operator"). Any such Third- Party Operator must comply with all of the terms, covenants, conditions, and obligations on Tenant's part to be observed and performed under this Lease and this Exhibit C-2 with respect to the use or occupancy of the Demised Premises, and any violation of any provision of this Lease by the Third-Party Operator shall be deemed to be a default by Tenant under such provision. Any such Third-Party Operator shall obtain such insurance as Landlord may reasonably require (consistent with the insurance requirements of landlords of comparable buildings for operators of similar commercial kitchens) and each of Tenant and Third-Party Operator shall indemnify, defend, and hold Landlord harmless in accordance with Tenant's indemnity obligations set forth in Section 7.5 of the Lease with respect to the operation of the Kitchen. Third Party Operator shall have no recourse against Landlord whatsoever on account of any failure by Landlord to perform any of its obligations under this Lease or on account of any other matter. All notices required of Landlord under this Lease shall be forwarded only to Tenant in accordance with the terms of this Lease and in no event shall Landlord be required to send any notices to any Third-Party Operator. In no event shall any use of any portion of the Demised Premises by the Third-Party Operator release or relieve Tenant from any of its obligations under this Lease. The Third-Party Operator shall be a Tenant party, and Tenant shall be fully and primarily liable for all acts and omissions of such Third-Party Operator as fully and completely as if such Third-Party Operator was an employee of Tenant. In no event shall the occupancy of any portion of the Demised Premises by any Third-Party Operator be deemed to create a landlord/tenant relationship between Landlord and such Third-Party Operator or be deemed to vest in Third-Party Operator any right or interest in the Demised Premises or this Lease, and, in all instances, Tenant shall be considered the sole tenant under the Lease notwithstanding the occupancy of any portion of the Premises by any Third-Party Operator. Upon request from Landlord, Tenant shall provide to Landlord a copy of any agreement between Tenant and the Third-Party Operator and the insurance required to be maintained by Third-Party Operator prior to the Third-Party Operator being allowed access to the Demised Premises by Tenant. All such insurance shall name Landlord as an additional insured. No disputes between Tenant and the Third-Party Operator shall in any way affect the obligations of Tenant hereunder.

EXHIBIT D JANITORIAL SERVICES

Lessor to provide janitorial service in a manner befitting a Class A Office facility. Janitorial services are provided five (5) times a week, Sunday night through Thursday night, excluding holidays.

NIGHTLY

Empty waste receptacles.

Vacuum high-traffic carpeted areas. Wash clean water fountains

and coolers.

Sweep and remove spillage from corridors.

Dry mop with treated cloth on hard surface high traffic areas. Conference room floors

swept & vacuumed.

All table tops in common areas wiped down. Conference room white boards

cleaned upon request. Wipe down pantry area.

Ensure lights are shut off.

Lavatories - nightly

Wash, dry and sanitize bowls, seats, urinals, washbasins and mirrors.

Empty paper towel and sanitary napkin disposal receptacles and remove to a designated area.

Replenish toilet tissue, towels and soap in dispensers. Sweep floors.

WEEKLY

Clean interior surfaces of elevator cabs and vacuum carpet. Sweep with treated

cloths composition tile flooring.

Damp wipe glass top desks and tables.

Spot clean carpeting as stains occur.

Remove fingermarks from doors and wall surfaces. Clean entrance doors and directory glass.

All ash urns and/or receptacles shall be emptied and thoroughly washed if necessary.

Lavatories – weekly

Wash and dry metal work. Mop and sanitize floors.

Wash sanitary disposal containers.

MONTHLY

Dust areas within hand-high reach, this includes windowsills, chairs, desks, tables, baseboards, file cabinets, pictures and conference room furniture.

Vacuum carpeted stairs.

Sweep stairways.

Spray buff main lobby floors. Wash lavatory booth

partitions. Spray buff hard surface floors.

Wash partition glass that is not obstructed, conference rooms and stairwells to be included. Wet mop composition tile flooring.

BI-ANNUALLY

High dust walls, ledges, pictures, files and sprinkler heads. Wash tile lavatory walls.

Vacuum roll up shades.

QUARTERLY

Scrub and wax composition tile flooring.

ANNUALLY

Sweep and dust fire tower stairways.

Wash exterior windows, inside and outside surfaces. Clean building standard lighting fixtures to 12-foot height.

EXHIBIT E

Form of Commencement Date Agreement

COMMENCEMENT DATE AGREEMENT

This **Commencement Date Agreement of the Lease (“Agreement”)** is made as of ___, 202_ by 5704 Penn Office, LLC (“Landlord”) with a mailing address c/o LG Realty Advisors, Inc., 535 Smithfield Street, Suite 900, Pittsburgh, PA 15222, and ___, a ___ (“Tenant”) with a mailing address of ___.

Landlord and Tenant hereby agree to and acknowledge the following matters:

1. Landlord and Tenant have entered into that certain Lease dated the day of ___, 202_ (the “Lease”), for the lease of certain space within the Building located at 141 S. St. Clair Street, Pittsburgh, PA 15206, as more particularly described in the Lease.
2. All terms and definitions contained in the Lease shall have the same meaning and effect when used in this Agreement, except where otherwise expressly defined in herein.
3. The Commencement Date under the Lease is ___, 202_.
4. The Expiration Date under the Lease is ___, 202_.
5. The Tenant hereby certifies that: (i) it is in possession and occupancy of the Premises (ii) the Lease is in full force and effect (iii) all of the Landlord’s Work has been Substantially Completed, and (iv) there are no offsets or defenses against the Landlord regarding the enforcement of this Agreement.

IN WITNESS WHEREOF, Landlord and Tenant have executed the Agreement as of the day and year first written above.

LANDLORD:

TENANT:

By: __

By: __

Name: __

Name: __

Title: __

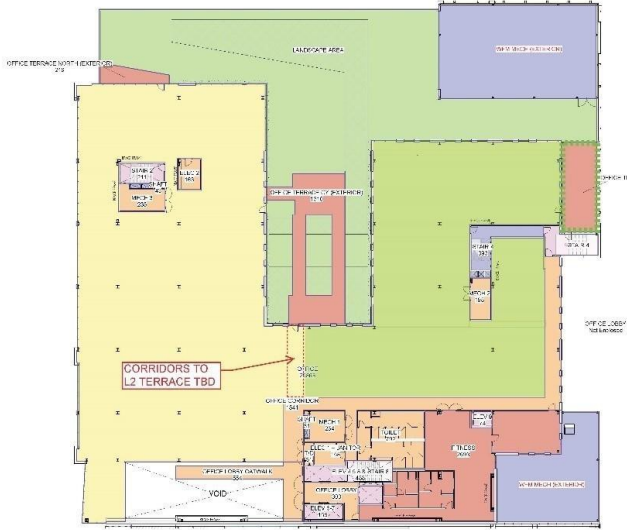
Title: __

EXHIBIT F

Outdoor Terrace

LIBERTY **east**

duolingo



EXCLUSIVE OUTDOOR TERRACE (EAST):

Tenant shall be granted exclusive access to L2 Office Terrace East (Exterior) (~678 SF; not included in RSF)

1 OFFICE L2
L.02 SCALE 1" = 30'-0"

mv+a | LG
LG REALTY ADVISORS

FOR INFORMATION ONLY

DATE 04/06/2020

L.02

*Area are measured to the exterior face of glass/wall, centerpoint of demising wall and not include all shafts and staircase. Area are approximate and subject to change.

EXHIBIT G

Landlord's Work (Base Building Specifications)



EXHIBIT

BASE BUILDING CORE & SHELL DELIVERY CONDITIONS

1. PROJECT DESCRIPTION

- Project Name: Liberty East
- Project Addresses: 5700 Penn Ave (Whole Foods Market)
141 S. St. Clair St. (Office Building)
151 S. St. Clair St. (Office Parking Garage)
161 S. St. Clair St. (Retail Space #2)
163 S. St. Clair St. (Retail Space #3)
- Project Description: New nine-story mixed-use building, over a two-story cast-in-place garage, retail and six-story precast garage, with associated site improvements
- Preliminary Gross Building Area: ~580,000 Square Feet (Includes parking garage square footage, but excludes roof terrace square footage)
- Use Group / Construction Type: Type I-B construction and fully sprinklered. Proposed uses are: Assembly (A-3), Business (B), Mercantile (M), Storage and Parking (S-2) Occupancy Groups
- Applicable Building Codes: Pennsylvania Uniform Construction Code with:
2018 IBC – Accessibility Provisions Only
2015 IBC (Chapter 1 not adopted covered in chapter 403 of USS); (Chapter 27 (Electrical) requires compliance with NFPA70-2014 National Electric Code)
2015 International Energy Conservation Code (IECC)
2015 International Fire Prevention Code (IFC)
(Adopted only to the extent referenced in Chapter 35 of IBC 2015)
2015 International Fuel Gas Code (IFGC)
2015 International Mechanical Code (IMC)
2015 International Plumbing Code (IPC)
2014 National Electric Code (NFPA 70)
- Construction Type Per IBC: I-B High Rise
- Exterior Envelope: As shown on the Drawings, including the following: Brick Masonry, Stone Base Material, Metal Siding, Metal and Cast Stone Coping, Aluminum Entrances, Storefronts, Curtainwalls and Windows, TPO and Hot Rubber Roof System

DISCLAIMER: TO THE EXTENT OF ANY INCONSISTENCIES BETWEEN THIS BASE BUILDING CORE & SHELL DELIVERY CONDITIONS EXHIBIT AND ANY OF THE FINAL AS-BUILT ARCHITECTURAL & ENGINEERING DRAWINGS & SPECIFICATIONS ("CONTRACT DOCUMENTS"), THE CONTRACT DOCUMENTS SHALL PREVAIL.

LIBERTY east

2. GENERAL DESIGN & SUSTAINABILITY

- Liberty East has been designed and built to achieve LEED v4 BD+C: Core and Shell Silver certification.
- Prospective tenants are encouraged to use the Liberty East tenant design and construction guidelines (“TDG”) to help implement sustainable strategies as exhibited by the base building.
- The US Green building council (USGBC) has a program suited for tenants at Liberty East. LEED for commercial interiors LEED-CI rating system identifies performance standards that tenants may follow to certify their project with the USGBC. Tenants of Liberty East can benefit from owner contributed credits (22 credits), more than half of the minimum credits required (40 credits) for LEED CI certification.

3. STRUCTURE

- All foundations were designed in accordance to 2015 International Building Code (2015 IBC) and ACI (318-14 “Building Code requirements for structural concrete and commentary).
- Foundations have been designed in accordance with project Geotechnical Report prepared by Gateway Engineers, Inc. dated May 15, 2019.
- Design Live Loads: The following design live loads have been used, as specified in the 2015 IBC, Chapter 16:
 - Office Building (Corridors above First Floor): 80 lbs/sf
 - Retail (First Floor): 125 lbs/sf
 - Parking Garage: 40 lbs/sf
 - Loading Dock Area: 250 lbs/sf
 - Occupiable Roofs (Roof Gardens, Assembly Areas): 100 lbs/sf
 - Floors are designed for uniformly distributed live loads noted above or actual concentrated loads, where such loading governs. Live load reduction for floors: Per IBC Code requirements.
- Elevated Floors:
 - Landlord shall deliver elevated floors (Floors 2 – 9) consisting of a 4 1/2” normal weight concrete slab on 3”-20 GA composite steel deck (Phosphatized on bottom).
 - Elevated floors are designed to accommodate the Design Live Loads specified above.
 - Elevated floors shall be smooth and ready for installation of Tenant’s flooring, and meet a Floor Flatness (FF) value of 25.
 - Floor-to-floor heights are 14’

4. VERTICAL TRANSPORTATION

- Landlord shall install the following vertical transportation for the Office Building:
 - Four (4) 3,500 lb., 350 FPM MRL (machine room-less) electric traction elevators with single speed center opening.
 - Door opening height and width shall be 7’0” and 3’6”, respectively.
 - Interior cab dimensions shall be ~6’2” wide x ~5’8” deep with a clear height of ~9’8”.

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LIBERTY east

- One (1) 4,500 lb., 350 FPM MRL (machine room-less) electric traction elevator with side opening (both front & rear) for freight.
 - Door opening height and width shall be 8'0" and 4'0", respectively.
 - Interior cab dimensions shall be ~5'4" wide x ~8'4" deep with a clear height of ~9'8".
- All five (5) elevators will have nine (9) stops on floors 1-9, and will include travel cables for card access integration.
- Landlord shall install the following vertical transportation for the Office Parking Garage:
 - Two (2) 3,500 lb., 350 FPM MRL (machine room-less) electric traction elevators with side opening.
 - Door opening height and width shall be 7'0" and 3'6", respectively.
 - Interior cab dimensions shall be ~6'4" wide x ~5'6" deep with a clear height of ~8'8".

5. EXTERIOR ENVELOPE & DETAILS

- **Roofing Systems:** Landlord shall deliver a complete roofing system in all roof locations, complete with all associated insulation to achieve an R-value of 30.
 - TPO roofing systems shall be 60 mil, fully-adhered and under a 20-year warranty. Color of membrane to be white or gray.
 - Protected membrane roofing systems, which shall be in locations of outdoor terraces and vegetative areas, shall be hot rubberized asphalt with reinforcing fabric, protection board, root barrier & drainage composite (vegetative areas only), insulation and filter fabric and shall be covered with pavers or be ballasted. Hot rubberized asphalt roofing systems shall be completed to achieve a 20-year system warranty with 5-year warranty on vegetative system and 2-year warranty on plantings.
- **Curtain Wall Glazing Details:** Landlord shall deliver a complete curtain wall system, including all vision glass, spandrel panels and frit glazing where specified on the Contract Documents.
 - Vision glazing shall consist of:
 - Unit Make Up: 1" insulated unit
 - Outboard Lite: ¼" Vitro Solarban 70XL - #2
 - Airspace / Gas: ½" Airspace with argon gas
 - Inboard Lite: ¼" Clear
 - Glazing coefficients: VLT – 64%, VRO – 13%, Solar Transmittance – 24%, Solar Reflectance Out – 40%, U-V Light Transmittance – 6%, Winter Nighttime U-Value – 0.24, Summer Daytime U-Value – 0.21, Shading Coefficient – 0.31, SHGC – 0.27
- **Masonry Exterior:** Exterior of the Building shall consist of a masonry veneer wall on structural steel studs with full-cavity insulation, fluid-applied, vapor-permeable membrane air barriers on Gypsum wall sheathing fastened to Cold-Formed Metal Framing.

6. CORE & SHELL INTERIORS (BASE BUILDING STANDARD)

- Landlord shall design, construct, install and deliver to Tenant the Base Building Core & Shell ("Base Building Work") with the following specifications:
 - Lobby and common areas on the first floor & second floor catwalk shall be finished, including:

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- Entrance & Vestibule: Aluminum & glass storefront lobby entrance, lobby vestibule with granite clad wall and recessed walk-off mat, push button bollards and fire control room.
- Double-Height Main Lobby: Cement-based terrazzo lobby floor & stair treads, carpet at interstitial stair landing & 2nd floor catwalk, custom wood feature-wall, custom security desk with integrated building security system, exposed steel column finished in intumescent paint, custom steel guardrail with clear tempered glass inserts, finished & painted drywall and/or ceramic wall tile, and all associated power, lighting, mechanical, electrical and code required items required to finish the lobby, per Contract Documents.
- Elevator lobbies on floors 1 & 2 shall be completed, including, finished & painted drywall and/or ceramic wall tile, custom wood-slats above elevators on floor 1, stainless steel elevator jambs and lighting.
- Elevator lobbies on floors 3 – 9 shall include code minimum lighting and door enclosures. Elevator lobby finishes on floors 3-9 shall be by Tenant.
- Building Standard Restrooms on all floors shall be finished by Landlord as part of the Base Building Work. This shall include stalls, partitions, sinks, faucets, soap dispensers, paper towel dispensers, toilet paper dispensers, trash receptacles and all other fixtures as may be necessary installed in quantities as required by Code based on occupancy loads for each floor (based on administrative office use). Building Standard Restroom finishes shall incorporate ceramic floor tile, ceramic wall tile, finished & painted drywall, solid surface countertops and powder-coated toilet partitions.
- Tenant Spaces:
 - Landlord shall construct and install Base Building mechanical rooms (three (3) per floor on floors 2-5 / two (2) per floor on floors 6-9), Base Building electrical rooms (two (2) per floor), tele/data rooms (one (1) per floor), janitor's closet (one (1) per floor), and stairwells, all including the installation of Base Building doors.
 - Floors shall consist of concrete slab ready for Tenant's floor coverings.
 - Interior side of the exterior walls shall be delivered with framing, insulation and interior vapor retarder. The interior layer of drywall is by Tenant.
 - No ceilings shall be installed by Landlord as part of the Base Building Work. 10'-10'6" suspended ceiling heights should be achievable, except in areas where conflicts exist with MEP needs of Tenant.
 - Columns and beams shall be spray fireproofed.
 - Underside of Phosphatized steel deck shall not be painted by Landlord.
 - Window shades are not included in the Base Building Work. Landlord shall establish a Building Standard shade (Roller Shade) & exterior color. Installation and purchase of window shades by Tenant.

7. LANDSCAPE (OCCUPIABLE ROOFTOP TERRACES)

- Landlord shall deliver the outdoor courtyards and terraces with Building Standard pavers, aluminum railings (where necessary), lighting (where specified) and screened mechanical equipment areas.
 - Expansive Level 2 Courtyard shall consist of terrace paver area (inside the "U" shape from column lines C.5 – F.5), large planting areas, ballasted areas, lighting and additional

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LIBERTY east

electrical outlets for events. Additional terraces shall exist on the North side (219 SF) & East side of Level 2 (678 SF).

- Level 6 shall include a terrace (1,297 SF) on the East side of the Building, complete with pavers.
- Level 7 shall include a terrace (2,507 SF) on the South side of the Building, featuring custom trellis, festival lighting, planters and pavers.
- Level 8 shall include an outdoor balcony (418 SF) on the North side of the Building, complete with lighting and pavers.

8. POWER

- Landlord has provided two (2) 480/277-Volt panels (42-pole spaces) and two (2) 208/120-Volt panels (42-pole spaces) on each floor.
- Landlord has provided the following electrical distribution equipment on each floor, with one (1) set of equipment in each electrical room:
 - Floors 2-5*
 - (2) 600-Amp, 480/277-Volt, 3-Phase, 4-Wire panels (each 42-pole spaces).
 - (2) 112.5 kVA, 480V – 208/120V step-down transformers
 - (2) 400-Amp, 208/120-Volt, 3-Phase, 4-Wire panels (each 42-pole spaces).
 - Floors 6-9*
 - (2) 400-Amp, 480/277-Volt, 3-Phase, 4-Wire panels (each 42-pole spaces).
 - (2) 75 kVA, 480V – 208/120V step-down transformers
 - (2) 250-Amp, 208/120-Volt, 3-Phase, 4-Wire panels (each 42-pole spaces).

****The electrical distribution & equipment specified above being provided by Landlord as part of the Base Building Work represents an approximate savings value to full floor occupants of \$35,000 / floor by comparison to only providing a busway and requiring occupants to provide all downstream distribution.***

- Tenant shall provide all breakers within these panels.
- **This equipment provides a power density of approximately 10 W/SF (watts per square foot) for Tenant use, which includes HVAC equipment beyond what is provided in the Base Building Work.

*****This varies slightly per floor based on leasable area, and it already factors out the power consumption of the core and shell HVAC equipment. This is a very generous Landlord allowance for power density and can support nearly every tenant user group.***

9. COMMUNICATIONS

- Landlord has provided **each floor** of the Office Building with (1) dedicated 4" conduit with pull string from the Building's main distribution frame (MDF) to the Building's demarcation point located at the 2nd floor Tele/Data room (Building Demarc). Landlord has provided sleeves in the concrete floors from floors 3-9 for distribution. Distribution of communications service(s) from the Building Demarc shall be by Tenant, including the installation of conduit, if required.

10. LIGHTING

- Tenant shall provide all interior lighting fixtures within its Premises under the Tenant fit-out scope, except at floor level restrooms where lighting shall be provided by Landlord.

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LIBERTY east

- Tenant shall provide interior lighting controls under the Tenant fit-out scope. Tenants are permitted to tie into the Landlord's lighting control system for time schedule control.
- Landlord has provided exterior lighting fixtures and associated lighting controls on floors with balconies and terraces, except on the inside of the "U" on the Level 2 terrace where Landlord has provided junction boxes to allow for maximum optionality for event lighting.
- Tenant emergency lighting will be circuited to the Landlord's emergency power distribution. Existing emergency circuit(s) on each floor from the Base Building Work may be reused for the Tenant fit-out scope. Where required, the Tenant is responsible for providing additional circuits from the nearest emergency panel.

11. FIRE ALARM SYSTEM

- Landlord has provided fire alarm system infrastructure (control panels, batteries, etc.). Tenant shall tie all devices into the Landlord system (must match the manufacturer).
- Landlord has provided initiating devices on each floor.
- Tenant shall provide all occupant notification devices (speakers, strobes, speaker/strobes). The Building fire alarm system utilizes voice evacuation. Tenant shall provide additional equipment & batteries inside Tenant space, where required.
- Tenant shall provide additions/modifications to the initiating device layout, as required.
- Existing fire alarm initiating and notification circuits serving each floor from the Base Building Work scope may be reused for the fit-out scope. Where required, Tenant is responsible for providing additional circuits from the nearest control panel.

12. HVAC

- Landlord has provided up to 30,000 cfm of cooling airflow per floor designed for ordinary office occupancy levels via three floor level equipment on floors 2-5 and two floor level equipment on floors 6-9 intended for use with Tenant-supplied VAV equipment system components. Capacity will vary per floor based on exposure.
- Landlord has provided up to 4,100 cfm of tempered outside air per floor designed for ordinary office occupancy levels. Capacity will vary per floor based on exposure.
- Landlord has provided up to 450,000 btu/hr of hot water at 145°F supply and 120°F return for use as reheat for Tenant-supplied VAV boxes. Capacity will vary per floor based on exposure.
- Landlord has provided up to 45 tower-tons of cooling capacity for dedicated or additional cooling equipment. Temperatures planned are 85°F for supply and 100°F for return. Capacity will vary per floor based on area.
- Landlord has provided each floor with a BAS controls router. Each floor should communicate with the BAS system via BacNET MS/TP over twisted pair wiring. Coordination with the Building controls provided so all new equipment can be added into the central system for observation by Building staff will be needed.
- Landlord has provided space to accommodate up to MERV-14 filtration on the floor level equipment that can be added by Tenant, if desired, at the time of Tenant fit-out.
- Landlord has provided space for Tenant to add humidification at each floor level piece of HVAC equipment to provide moisture during the heating season, if desired.

13. PLUMBING

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LIBERTY east

- Landlord has provided each floor with Building Standard restrooms sized for ordinary office occupancy levels.
- Landlord has provided each floor with core and shell sanitary waste piping for future sink waste and venting.
- Landlord has provided each floor with cold water piping stubs for future plumbing fixture supply water.

14. FIRE SPRINKLER

- Landlord has provided each floor with core and shell fire sprinkler protection for light hazard occupancy (sprinkler heads turned up). The system shall be modified by Tenant, as required by Code based on Tenant's fit-out plans & specifications.

15. SECURITY SYSTEM

- Liberty East has been designed & built with a state-of-the-art base building Security system, including:
 - IP Security camera coverage in ~10 locations – throughout all exterior common areas, main office lobby, loading dock, and parking garage.
 - Elevators shall include travel cables to support card access system
 - **Card access systems mounted in each elevator (5), main lobby (1), loading dock (1) and other egress door(s).
 - **Stairwell doors shall include electrified hardware tied into the base building fire alarm system for access to floors in case of emergency. Card access system in stairwells shall be by Tenant, if required.
- **Card controlled access to the main building entrance shall be provided. Tenants at Liberty East may tie into the base building card access system or opt for their own card access system for enhanced security from the lobby entrance, elevator lobby entrance(s) on each floor or stairwells on each floor, as part of Tenant fit-out**
- Liberty East has engaged with Edgeworth Security to provide 24/7 remote guarding solutions for the office parking garage. Edgeworth's capabilities include the following:
 - Safer Space: Analytic-driven monitoring resulting in proactive incident detection, deterrence, and disruption. Safer Space uses cameras and other security-sensors on site to efficiently recognize the anomalous events that require review by Edgeworth's professional agents in Pittsburgh. The purpose of the service is always to prevent crime.
 - Remote Guard Patrol: Edgeworth Live agents conduct systemized, dedicated smart technology patrols to inspect premises, monitor critical assets, validate compliance, or conduct custom client requirements, replacing or enhancing physical guard duties and providing a more secure and cost effective solution.
 - Help Assist: The Help/Emergency Call Buttons provide a rapid 2-way communication service with a live Agent 24/7 at the Edgeworth Command Center. In the event of an emergency (Criminal, Medical, Environmental), Edgeworth's Agents will contact Emergency Responders immediately as well as monitor the site continuously until the event is resolved or authorities secure the area. In the event of a nonemergency (lock-out, flat tire, lost car, etc.) calls, Edgeworth's Agents will provide the patron with client provided pre-arranged referral

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LIBERTY east

numbers for services, as well as provide reassurance that they are virtually patrolling the area.

- Virtual Escort: Utilizing live video and audio notifications Edgeworth's Agents can monitor, greet, provide instructions, and follow progress of employees, visitor's or contractors on the premises to ensure peace of mind, security and safety.

16. LIBERTY EAST PROJECT INFORMATION

- Owner: LG Realty Advisors
535 Smithfield Street, Suite 900
Pittsburgh, PA 15222
(412) 281-9100
- Architect: MV+A | Mushinsky Voelzke Associates
1200 G Street
Suite 250
Washington, DC 20005
(202) 682-2822
- General Contractor: PJ Dick
P.O. Box 6774
225 North Shore Drive
Pittsburgh, PA 15212
(412) 287-9147

Owner Consultants: The Owner has retained the following design professionals who have prepared designated portions of the Base Building Core & Shell contract Documents:

- Civil Engineer: Gateway Engineers, Inc.
100 McMorris Road
Pittsburgh, PA 15205
(412) 409-2338
- Landscape Architect: Pashek + MTR
619 East Ohio Street
Pittsburgh, PA 15212
(412) 321-6362
- Traffic Consultant: David E Wooster and Associates, Inc.
2 East Crafton Avenue
Pittsburgh, PA 15205
(412) 921-3303
- LEED Consultant: 3R Sustainability
2401 Smallman Street
3rd Floor
Pittsburgh, PA 15222

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LIBERTY east

(724) 741-9900

- Security Consultant: Information Technologies Services
631 Idlewood Ave
Carnegie, PA 15106
(412) 429-1701

Architect's Consultants: The Architect has retained the following consultants who have assisted with preparation of designated portions of the Base Building Core & Shell contract Documents:

- Structural Engineer: Gateway Engineers, Inc.
100 McMorris Road
Pittsburgh, PA 15205
(412) 409-2338
- Parking Garage Consultant: The Harman Group
900 West Valley Forge Road
Suite 200
King of Prussia, PA 19406
(610) 337-3360
- MEP Engineer: Allen + Shariff
2 Allegheny Center
Nova Tower 2, Suite 1001
Pittsburgh, PA 15212
(412) 322-9280
- Lighting Designer: MCLA Architectural Lighting Design
1000 Potomac Street, NW,
Suite 121
Washington, DC 20007
(202) 298-8062
- Elevator Consultant: Lerch Bates
2448 Holly Avenue, Suite 301
Annapolis, MD 21401
(240) 832-0944
- Specifications Consultant: Rosa D Cheney AIA, PLLC
4075 Wilson Boulevard, 8th Floor
Arlington, VA 22203

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EXHIBIT H ROFR PREMISES

Exhibit H-1 (2nd Floor ROFR Premises)

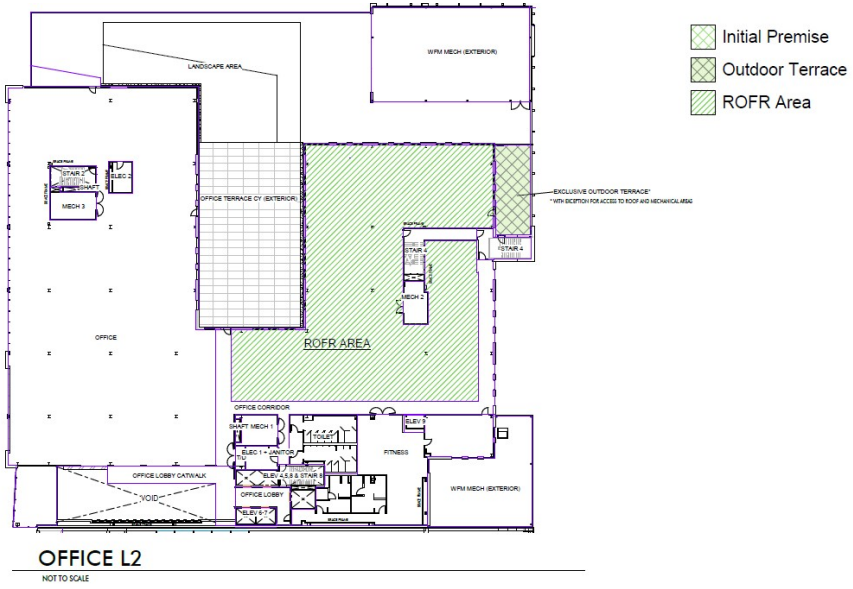
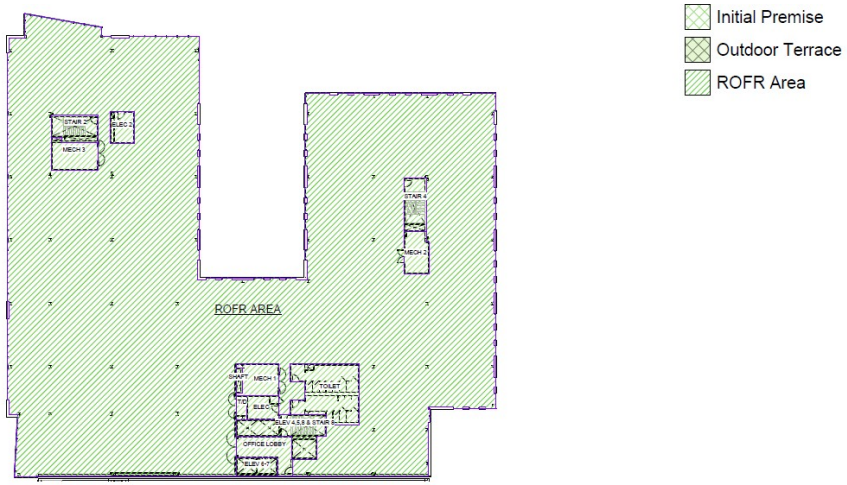


Exhibit H-2 (4th Floor ROFR Premises)



OFFICE L4

NOT TO SCALE



141 S. ST. CLAIR ST., PITTSBURGH PA

DATE 10/08/2021

L.04

*Area are approximate and subject to change.

Exhibit I

Euclid Avenue Façade



Exhibit J

GENERATOR AND SATELLITE REGULATIONS

Generator:

- (a) Prior to the installation or operation of a generator, Tenant shall have the sole responsibility at its cost to secure any necessary approvals and permits related to the installation and operation of the Generator from any applicable state, federal or other governmental authorities ("Permits") and shall provide copies of the same to Landlord. Upon receipt of a written request, Tenant shall promptly provide copies of all plans, manuals, and inspections reports related to the installation, operation, and maintenance of the Generator. Tenant shall construct, operate, and maintain the Generator in accordance with all applicable laws, including all environmental laws, ordinances, rules and regulations and in compliance with the reasonable requirements of the insurers of the Office Unit.
- (b) Unless Landlord elects to retain the generator, in Landlord's sole determination, at the expiration or earlier termination of the Lease the Generator shall be removed from its location at Tenant's sole cost and Tenant shall restore such area to the condition existing prior to such installation, allowing for reasonable wear and tear, and any damage caused by such removal shall be repaired at Tenant's sole cost. In the event that Tenant is required to and fails to so remove the Generator within thirty (30) days of the termination or earlier expiration of this Lease, the same shall constitute Tenant's abandonment of the Generator and relinquishment of any ownership rights thereto and Landlord shall have the right to remove and dispose of the Generator and charge Tenant for all costs and expenses incurred. Tenant agrees that Landlord shall not be liable for any property disposed of or removed by Landlord pursuant to the immediately preceding sentence. Tenant's obligations hereunder shall survive the expiration or earlier termination of the Lease.
- (c) Prior to the expiration of the Term or earlier termination of this Lease, in the event that Tenant has installed a diesel generator on the Office Unit, Tenant shall engage a licensed environmental engineer to conduct an analysis of the area upon which the generator was located to ascertain whether the generator has created any adverse environmental conditions on the Office Unit. Such engineer shall provide a written report outlining their findings. In the event that such report concludes that the Office Unit has been impacted as a result of the generator, the diesel fuel, or its operations, Tenant shall be solely responsible for mitigating any such conditions and returning the Property to its condition prior to the installation of such generator. This section shall survive the termination or expiration of this Lease.
- (d) Tenant hereby agrees to indemnify Landlord from and against any Event of Default by Tenant of the obligations stated in this Exhibit J and agrees to defend and hold Landlord harmless from and against any and all third-party claims, judgments, damages, penalties, fines, costs, liabilities, or losses (including, without limitation, damages for the loss or restriction or use of rentable space or of any amenity on the Property, and sums paid in settlement of claims, reasonable attorneys' fees, consultant fees and expert fees) which arise during or within two (2) years after the Term of this Lease as result of any such Event of Default. In addition, Tenant shall indemnify, defend and hold Landlord, its principals, officers, directors, agents, employees and servants harmless from and against any liability, loss, costs, claims, damage and expense of whatever kind arising directly or indirectly from the installation, operation, maintenance, repair, and removal of such Generator, including, but not limited to, reasonable attorneys' fees and court costs. Prior to the installation and during the Term of this Lease, Tenant shall carry

liability insurance, property insurance, and pollution liability insurance naming Landlord as an additional insured, subject to Landlord's approval.

Satellite Dish and Fiber Optic Cabling:

- (a) Prior to any installation of the Satellite Dish, Tenant shall deliver to Landlord for its prior review and approval, as may be applicable, a set of scaled and dimensioned plans and specifications, which shall include, without limitation, the size and weight of the proposed Satellite Dish, the proposed location of the Satellite Dish, the floor and power load requirements of the Satellite Dish, and the location and kind of electrical or other services to and from the Satellite Dish and detailed specifications of the means of attaching and securing the Satellite Dish. For any proposed installation of fiber cabling, Tenant shall provide a plan to Landlord describing the cabling to be installed, the means of installation, and a wiring plan depicting the location of such installation.
- (b) In installing any Satellite Dish or cabling, Tenant shall not be permitted to penetrate the roof, roof liner, deck, flashing, or other components of the roof, but shall be permitted to anchor the Satellite Dish using concrete blocks or other weights, subject to the applicable load requirements. Tenant shall complete the installation of the Satellite Dish in accordance with the plans and specifications therefor approved by Landlord. Tenant shall use any specified roofing contractor or other general contractor required by Landlord to install the Satellite Dish so as avoid any compromise to the roof structure or membrane. Wiring shall be through existing sleeve installed in the Office Unit by Landlord (if any). In the event there are no sleeves, Tenant shall install same, at its own cost and expense. At Landlord's election, all electricity used in connection with the Satellite Dish shall be metered, for which Tenant shall install and pay for the necessary meters and for the cost of electricity consumed.
- (c) Tenant agrees that the Satellite Dish shall not materially interfere with the use and operation of other facilities or equipment now or hereafter located on or in the Office Unit and Landlord shall not be liable for interference with the use and operation of the Satellite Dish by reason of the existence and operation of other satellite antennae or antennae or related equipment on or in the Office Unit.
- (d) Tenant shall be responsible for the cost of the installation, service, repair, replacement, removal, and maintenance of the Satellite Dish and any fiber cabling and related equipment and cabling and for any repair or damage caused by the Satellite Dish or installation, maintenance, and repair of the fiber cabling, or by Tenant or any of its employees, agents, contractors or invitees, and the Satellite Dish shall be treated as if the Satellite Dish were part of Tenant's personal property located within the Premises. Without limiting the generality of the foregoing, all provisions of this Lease with respect to Tenant's alterations and Tenant's obligations to comply with laws and insurance requirements, maintaining insurance, indemnifying Landlord and performing repairs and maintenance shall apply to Tenant's installation, use and maintenance of the Satellite Dish and fiber cabling. Tenant's right to install, operate and maintain the Satellite Dish shall be subject to Tenant obtaining all necessary governmental permits and approvals required for the installation and operation of the Satellite Dish, including, without limitation, all federal, state and local permits and approvals, which permits and approvals shall remain in effect at all times that the Satellite Dish remains on the Office Unit.
- (e) Upon termination of this Lease, Tenant shall, at its own cost and expense, remove the Satellite Dish and related equipment and cabling and repair any damage caused thereby. Tenant shall maintain the Satellite Dish in good order and repair and Tenant, its employees, agents and contractors shall

have access to the roof for the purposes of installation, maintenance and repair of Tenant's Satellite Dish at reasonable times, which times (except in the case of emergency) shall be arranged in advance with Landlord and shall at all times comply with any applicable roof or other equipment's warranties. Landlord or its representatives may accompany Tenant whenever Tenant, its employees, agents or contractors enter on the roof of the Office Unit. Landlord shall have the right to, or to require Tenant to, move the Satellite Dish to another location designated by Landlord or to cease the operation of the Satellite Dish by Landlord and to remove same if the Satellite Dish shall be in violation of applicable law or shall interfere with the use and operation of other facilities or equipment now or hereafter located at or within the Building or is not operating in accordance with the terms herein, without liability to Tenant therefor.

- (f) The Satellite Dish shall only be used as part the operation of Tenant's business within the Premises. No other tenant or user may use the Satellite Dish and Tenant may not collocate any other dishes, antennas, or other equipment on, around, or as part of the Satellite Dish.
- (g) The Satellite Dish shall not exceed three (3) feet in height and shall not be visible from any public areas within the Office Unit nor from any adjacent public areas, including, but not limited to public roadways or parks.

<u>Name of Subsidiary</u>	<u>Jurisdiction</u>
Duolingo Mexico S. de R.L. de C.V.	United Mexican States
Beijing Duolingo Technology Co., Ltd.	People's Republic of China
Dos Lenguas LLC	United States of America
Duolingo Germany GmbH	Federal Republic of Germany

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-257483 on Form S-1 and Registration Statement Nos. 333-258210 and 333-258211 on Form S-8 of our report dated March 4, 2022, relating to the financial statements of Duolingo, Inc. and subsidiaries appearing in this Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ Deloitte & Touche LLP
New York, New York
March 4, 2022

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Duolingo, Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2021 (the "Report"), Luis von Ahn, President and Chief Executive Officer of the Company, and Matthew Skaruppa, Chief Financial Officer of the Company, each hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 4, 2022

/s/ Luis von Ahn

Luis von Ahn

President and Chief Executive Officer
(Principal Executive Officer)

/s/ Matthew Skaruppa

Matthew Skaruppa

Chief Financial Officer
(Principal Financial and Accounting Officer)