

shareholder letter Q2 2023

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



Q2 Highlights

User Metrics	Q2 2022	Q2 2023
Daily Active Users	13.2M	21.4M +62% YoY
Monthly Active Users	49.5M	74.1M +50% YoY
Paid Subscribers at period end	3.3M	5.2M +59% YoY
Paid Subscriber Penetration as % of MAU*	7.2%	7.9%

Financial Metrics	Q2 2022	Q2 2023
Revenue	\$88.4M	\$126.8M +44% YoY
Total Bookings	\$97.5M	\$137.5M +41% YoY
Net (Loss) Income	\$(15.0)M	\$3.7M
Adjusted EBITDA	\$4.2M 4.7% margin	\$20.9M 16.5% margin

*LTM MAU

Dear shareholders,

We delivered another strong quarter, **beating our expectations on both the top and bottom line, and on user growth**. Our performance is a testament to the quality of our product and to the strength of our brand. Here's a summary of our second quarter 2023 results:

Second Quarter Highlights

- DAUs increased 62% to 21.4 million and MAUs increased 50% to 74.1 million, compared to the prior year quarter;
- DAU/MAU, a measure of user engagement, reached an all-time high of 29%;
- The number of paid Super Duolingo subscribers totaled 5.2 million at the end of Q2, an increase of 59% compared to the prior year quarter;
- Total bookings grew 41% and revenue grew 44%, compared to the prior year quarter (42% and 46%, respectively, on a constant currency basis);
- Subscription bookings increased 43% to \$106.3 million compared to the prior year quarter;
- Our net income was \$3.7 million, and we delivered our highest quarterly Adjusted EBITDA of \$20.9 million, or a 16.5% margin;
- Cash flow from operating activities increased to \$37.2 million and we delivered record free cash flow of \$34.3 million, or 27.1% margin.

Based on this performance, we are raising our full-year 2023 total bookings guidance to reflect 33-34% year over year growth. We are also raising our target Adjusted EBITDA margin range to 14-15% for the year.

In this letter, I want to focus on our unique approach to marketing, why it works, and how it helps with our user growth. Our marketing efforts have become an increasingly efficient complement to our organic user growth, and we've also been winning awards! In 2022, Ad Age named Duolingo one of its "Hottest Brands." And this June, we took home our first Gold Lion award at Cannes for our "High Valyrian Lessons" campaign.

The Most Popular Way to Learn

Duolingo has organically become the most popular way to learn a language. Word of mouth has been our most powerful growth lever since the beginning and we expect that to continue—we've created a beautiful product that is free, fun, and effective, and because of that learners avidly refer their friends and family.

We spend relatively little on paid user acquisition, and the vast majority of our users have been acquired organically, but that doesn't mean that our marketing isn't effective. We have tested our way to a marketing strategy that inserts our brand into pop culture events and social media moments in order to expose it to new audiences and drive word-of-mouth growth. We call this social-first marketing.

Our Social-First Marketing Strategy

“Social-first marketing” means that every campaign we create starts with the goal of driving virality for our brand. To do that, we create content that delights and engages our audiences, prompting them to share it on social media. We tap into trending topics or connect with major pop culture moments like the **Barbie movie**, which, spoiler alert, includes a scene featuring Duolingo. We also don’t sell directly in our campaigns—you’ve never seen a “try Duolingo” button on any of our social posts. This strategy is relatively low cost, and has generated outsized returns in terms of social media impressions, press coverage, and, ultimately, new users to Duolingo.

A fun example of this is our annual April Fools prank, which **went viral in 2019** and is now a yearly brand moment. It has grown in scale each year, reaching more people and enabling us to partner with bigger brands. This year, we partnered with NBC’s Peacock to create “**Love Language**,” a fictitious dating reality TV show in which contestants don’t speak each other’s language.



Love Language Trailer - 04/01



Duo attending Taylor Swift's Eras Tour - Pittsburgh 06/17



Duo, guest at the Barbie Premiere - L.A. 07/11

Our Learners Are Brand Ambassadors

Our social-first marketing approach has a wonderful brand benefit—fans and users become brand ambassadors that spread our message. They share their experiences with our products, engage with our social content, and **create their own viral Duolingo memes and lore** often inspired by our own social posts. In fact, we’ve seen user-created content on TikTok and YouTube outpace impressions of our own posts.

This organic, user-created content also gives us data and insight into how our brand is perceived around the world. For example, while our mascot Duo is beloved globally, we've discovered that Lily, our purple-haired, emo teenager is adored by learners in China. Organic fan content devoted to Lily has spread across Chinese social media. We've taken that insight to heart, producing [social content using a Lily mascot suit](#) and offering Lily plushies and stickers in our new [merchandise store](#).

As a result of this social-first marketing strategy, we've become one of the most followed brands on TikTok globally, and have seen 150% YoY growth in our social media impressions. This, in turn, has driven our brand awareness and word-of-mouth user growth.

Accelerating Our Mission with AI

In our [last letter](#), I said that we have used machine learning and AI for about a decade to make Duolingo more personalized and engaging. Over the next decade, we believe these technologies will enable us to accelerate our ability to provide our learners with an even more fun, personalized, and effective learning experience. That's why we've been so excited about launching new AI-enabled features into our product like those in Duolingo Max, the higher subscription tier that we are testing. We're also applying new generative AI tools throughout the company. For example, we're using them to speed up our script-writing for Duolingo Stories and to more efficiently scale our course content.

We expect to continue integrating AI more and more deeply into everything we do. Using new technologies to make excellent products takes time to get right, but we think we are uniquely well-positioned to do that—we have experience with AI and an enormous user base that will help us test new features and products. We are excited to see what we can build.

In Closing

I'd like to remind everyone to tune in on October 11th to Duocon, our annual event where we discuss all things Duolingo. It's a hoot! And I'd like to thank our team for their excellent work this quarter, as always.

Until next time, don't forget to do your Duolingo!



A handwritten signature in black ink, which appears to be 'Luis von Ahn'. The signature is fluid and cursive, written in a professional style.

Luis von Ahn
CEO and Co-Founder

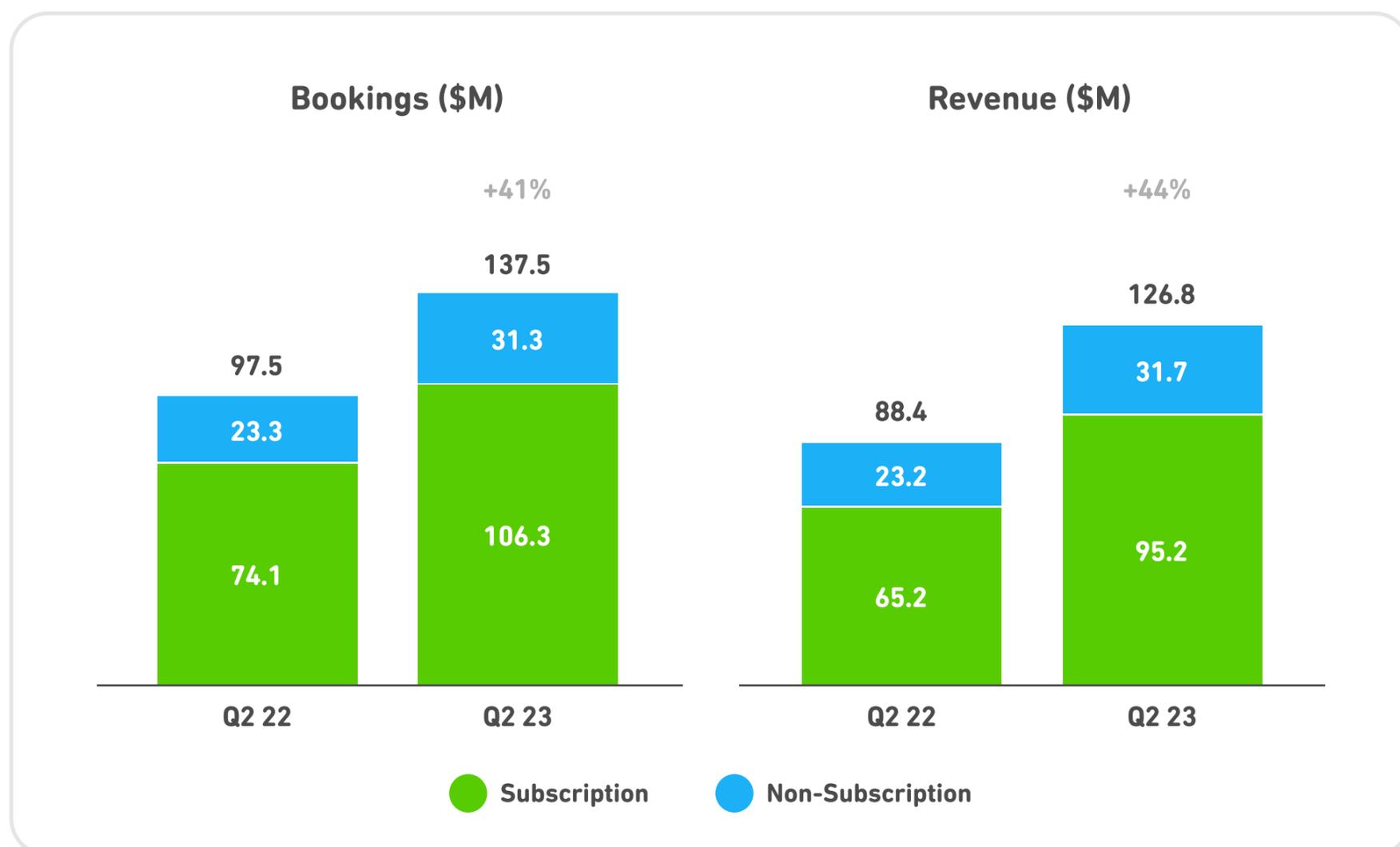
financial performance and outlook

Summary of Financial and Key Operating Metrics

(in millions)	Q2 2022	Q2 2023	YoY
User Metrics			
Monthly active users (MAUs)	49.5	74.1	50%
Daily active users (DAUs)	13.2	21.4	62%
Paid subscribers (period end)	3.3	5.2	59%
Operating Metrics			
Total bookings	\$97.5	\$137.5	41%
Subscription bookings	\$74.1	\$106.3	43%
GAAP Financial Metrics			
Revenues	\$88.4	\$126.8	44%
Gross profit	\$64.5	\$93.1	44%
Gross margin (%)	73.0%	73.4%	~40 bps
Net (loss) income	(\$15.0)	\$3.7	nm
Net cash from operating activities	\$12.7	\$37.2	>100%
Non-GAAP Financial Metrics (1)			
Adjusted EBITDA	\$4.2	\$20.9	>100%
Free cash flow	\$9.9	\$34.3	>100%

(1) Please refer to the Appendix at the end of this letter for a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measure.

Amounts reported in millions are computed 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.



In the second quarter, total bookings grew 41% year over year on a reported basis (and 42% on a constant currency basis) to \$137.5 million. This was primarily driven by a 43% increase in subscription bookings. Revenues grew 44% year over year on a reported basis to \$126.8 million in the second quarter (and 46% on a constant currency basis), driven primarily by growth in subscription revenue, which grew 46% year over year, and comprised 75% of revenues.

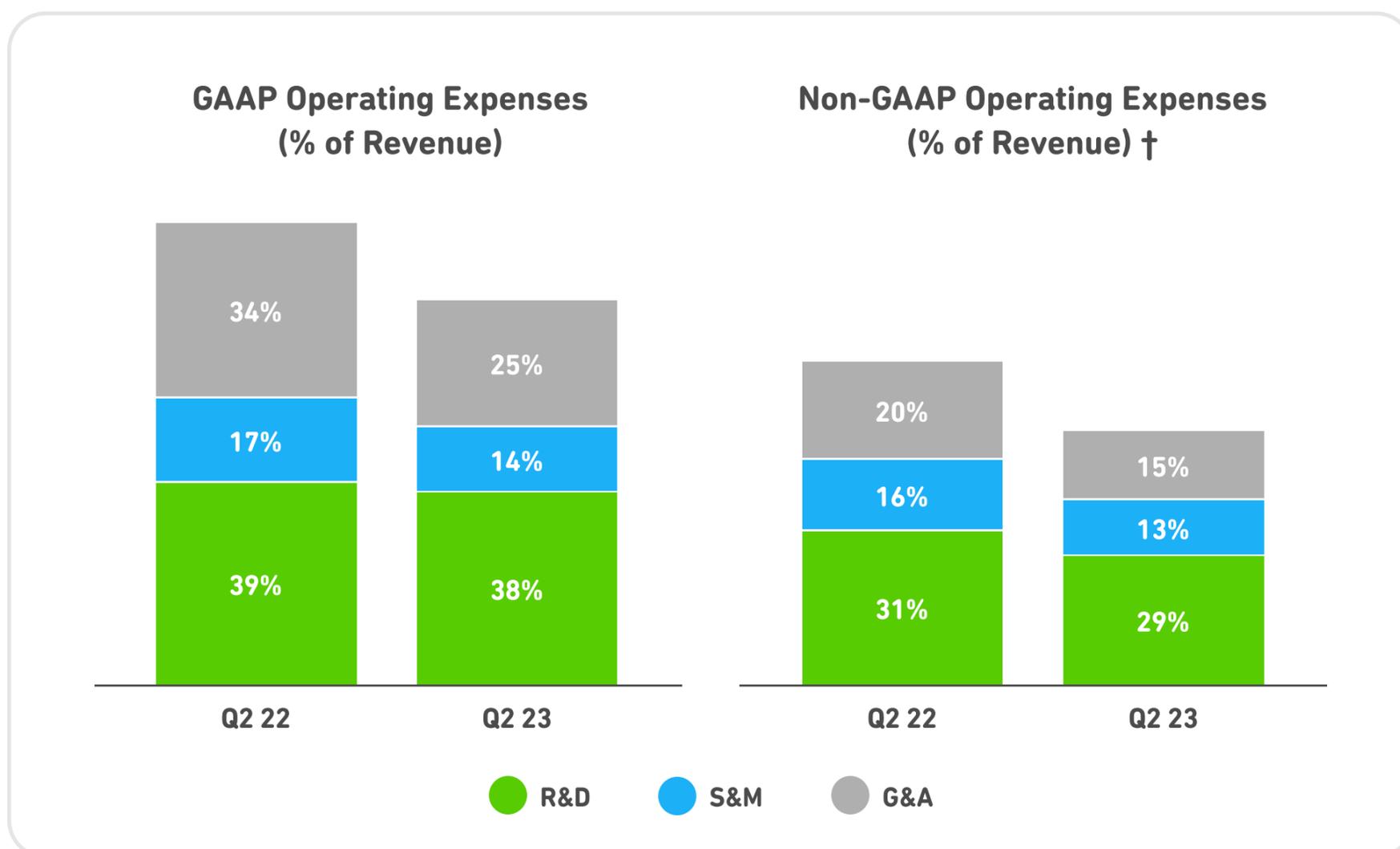
The increase in both subscription bookings and subscription revenue was primarily driven by a higher average number of Super Duolingo subscribers. Subscription revenue per subscriber declined 7% year over year, primarily due to regional pricing and foreign currency changes.

The table below provides revenues by product type:

(in millions)	Q2 2022	Q2 2023	Change	%Change
Subscription	\$65.2	\$95.2	\$30.0	46%
Advertising	11.2	13.1	1.8	16%
Duolingo English Test	8.0	9.8	1.8	22%
Other*	3.9	8.8	4.9	>100%
Total revenues	\$88.4	\$126.8	\$38.5	44%

Gross margin increased by approximately 40 basis points year over year to 73.4% in the second quarter. This was primarily driven by higher subscription margins as a result of a reduction in third-party payment processing fees per subscriber, as well as improved margins on the Duolingo English Test from higher pricing. These improvements were partially offset by lower advertising margins during the period due to lower advertising revenue per DAU.

*Other primarily includes in-app sales of virtual goods.



We report three categories of operating expenses: Research and development (R&D), Sales and marketing (S&M), and General and administrative (G&A). Non-GAAP operating expenses† represent GAAP expenses adjusted for depreciation, amortization, stock-based compensation expenses related to equity awards, and IPO and public company costs, as well as other expenses. The majority of the adjustment in Q2 2023 was for stock-based compensation (SBC) expense of \$23.7 million. Nearly a third of our SBC expense was related to our pre-IPO founder equity awards, which are intended to serve as the sole equity award opportunity for our founders through 2031. As a reminder, these founder awards are meant to align our founders’ economic interests with those of shareholders because they vest, in part, based upon the achievement of stock price hurdles that, if achieved, would result in significant value creation for our equity holders. However, these founder awards are expensed even if none of the stock price hurdles are achieved. The next hurdle would be achieved if our stock price averaged \$178.50 per share for 60 days.

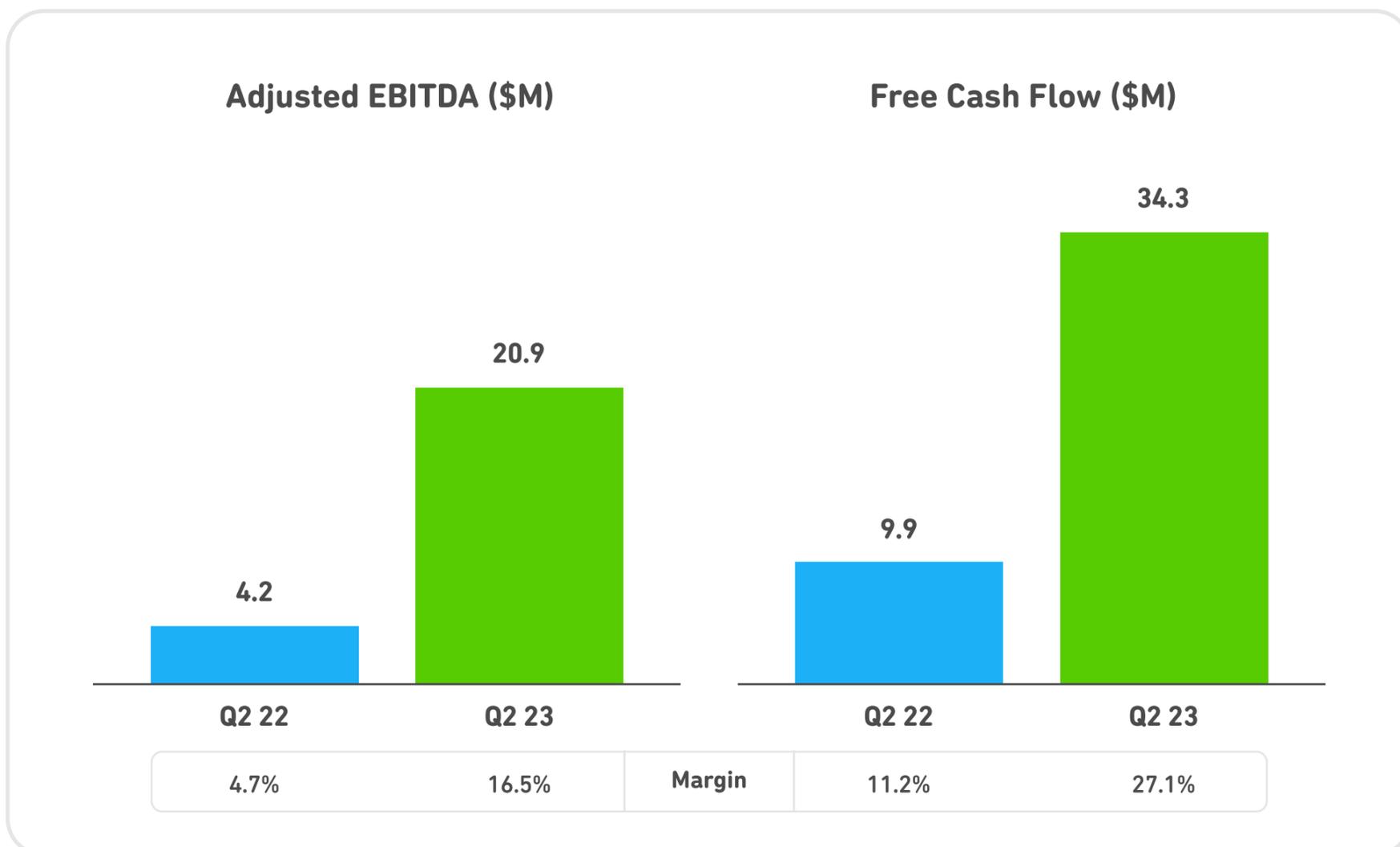
In Q2, we achieved significant leverage across total operating expenses, both on a GAAP and non-GAAP basis.

GAAP R&D expense decreased from 39% to 38% of revenue year over year. On a non-GAAP basis, R&D expense decreased year over year from 31% to 29%. While we continue to prioritize investment in R&D—primarily through hiring talented engineers, product managers, and designers—our top line performance has outpaced our growth in R&D expense.

GAAP S&M expense decreased from 17% to 14% of revenue year over year. On a non-GAAP basis, S&M expense decreased year over year from 16% to 13%. We continue to see success in applying learnings to more efficiently and strategically spend our marketing dollars.

GAAP G&A expense decreased from 34% to 25% of revenue year over year. On a non-GAAP basis, G&A expense decreased year over year from 20% to 15%. G&A has provided the most operating leverage year over year, particularly in office, legal and accounting expenses, and company-wide events.

†Please refer to the Appendix at the end of this letter for a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measure.



We continue to manage the business with cost discipline, and we are making progress towards our 2023 revised target range of 14-15% Adjusted EBITDA margin†. In Q2, we achieved our highest quarterly Adjusted EBITDA†, which increased by \$16.7 million year over year to \$20.9 million, a 16.5% margin. The increase was driven by growth in revenue and improved leverage across all categories of operating expenses.

During Q2, we generated our highest quarterly free cash flow (FCF)† of \$34.3 million, a 27.1% FCF margin†, driven primarily by an increase in cash from operations.

†Please refer to the Appendix at the end of this letter for a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measure.

Q3 and FY 2023 Guidance

Duolingo is providing the following guidance for the third quarter and the full year 2023.

(in millions)	Q3 2023	FY 2023
Bookings	\$136.5 - 139.5	\$569 - 575
YoY Bookings Growth	33% - 36%	33% - 34%
Revenues	\$129.5 - 132.5	\$510 - 516
YoY Revenue Growth	35% - 38%	38% - 40%
Adjusted EBITDA	\$16.8 - 18.6	\$71.4 - 77.4
Adjusted EBITDA margin	13% - 14%	14% - 15%

With regards to the non-GAAP Adjusted EBITDA and Adjusted EBITDA margin outlook provided above, a reconciliation to GAAP net (loss) income, the most directly comparable financial measure presented in accordance with GAAP, has not been provided as the quantification of certain items included in the calculation of GAAP net (loss) income cannot be calculated or predicted at this time without unreasonable efforts. For example, the non-GAAP adjustment for stock-based compensation expenses related to equity awards requires additional inputs such as number of shares granted and market price that are not currently ascertainable, and the non-GAAP adjustment for certain legal, tax and regulatory reserves and expenses depends on the timing and magnitude of these expenses and cannot be accurately forecasted. For the same reasons, we are unable to address the probable significance of the unavailable information, which could have a potentially unpredictable, and potentially significant, impact on our future GAAP financial results.

Video Webcast

Duolingo will host a video webcast to discuss its second quarter results today, August 8, 2023, at 5:30 p.m. ET. This live webcast and related materials will be publicly available and can be accessed at investors.duolingo.com. A replay will be available on the Investor Relations website two hours following completion of the webcast and will remain available for a period of one year.

About Duolingo

Duolingo is the leading mobile learning platform globally. Its flagship app has organically become the world's most popular way to learn languages and the top-grossing app in the Education category on both Google Play and the Apple App Store. With technology at the core of everything it does, Duolingo has consistently invested to provide learners a fun, engaging, and effective learning experience while remaining committed to its mission to develop the best education in the world and make it universally available.

Definitions

Subscription Bookings and Total Bookings. Subscription bookings represent the amounts we receive from a purchase of any Duolingo subscription offering. Total bookings represent the amounts we receive from a purchase of any Duolingo subscription offering, a purchase of a Duolingo English Test, an in-app purchase of 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.

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.

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.

Throughout this document, the measurement period for MAUs and DAUs is the three months ended June 30, 2023 and the same period in the prior year where applicable, and the analysis of results is based on those periods.

Paid Subscribers. Paid subscribers are defined as users who pay for access to any Duolingo subscription offering 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.

Limitation of Key Operating Metrics and Other Data

We manage our business by tracking several operating metrics, including MAUs, DAUs, paid subscribers, and subscription and total bookings. 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. Because we update the methodologies we employ to create metrics, our operating metrics may not be comparable to those in prior periods. Other companies, including companies in our industry, may calculate these metrics differently.

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; Adjusted EBITDA margin; non-GAAP R&D expense, non-GAAP S&M expense and non-GAAP G&A expense (collectively, the “non-GAAP operating expenses”); Free cash flow, and Free cash flow margin. Please refer to the definitions and reconciliation at the end of this letter. 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 these non-GAAP financial measures 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 financial 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 financial measures differently or not at all, which reduces their usefulness as comparative measures.

The effect of currency exchange rates on our business is an important factor in understanding period to period comparisons. We use non-GAAP percentage change in constant currency revenues, which exclude the impact of fluctuations in foreign currency exchange rates, for financial and operational decision-making and as a means to evaluate period-to-period comparisons. We believe this information is useful to investors to facilitate comparisons and better identify trends in our business. The impact of changes in foreign currency may vary significantly from period to period, and such changes generally are outside of the control of our management. We calculate constant currency revenues by using current period foreign currency revenues and translating them to constant currency using prior year comparable period exchange rates. Constant currency revenue percentage change is calculated by determining the change in current period revenues over prior year comparable period revenues where current period foreign currency revenues are translated using prior year comparable period exchange rates.

Forward-Looking Statements

This Shareholder Letter 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 letter, including without limitation, statements regarding our business model and strategic plans, including the anticipated release of new products, the effectiveness of our marketing efforts, and our financial outlook 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 neither promises nor guarantees, but involve a number of known and unknown risks, uncertainties and assumptions that may cause our actual results, performance or achievements to 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 maintain 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; our ability to access, collect, and use personal data about our users and payers, and to comply with applicable data privacy laws; regulatory and legislative developments on the use of artificial intelligence and machine learning; potential intellectual property-related litigation and proceedings; our ability adequately obtain, protect and maintain our intellectual property rights; and the other important factors more fully detailed under the caption "Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as any such factors may be updated from time to time, including without limitation our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2023 and in our other filings with the SEC, accessible on the SEC's website at www.sec.gov and the Investor Relations section of the Company's website at investors.duolingo.com. All forward-looking statements speak only as of the date of this letter. While we may elect to update such forward-looking statements at some point in the future, we disclaim any obligation to do so, even if subsequent events cause our views to change.

Website Information

We routinely post important information for investors on the Investor Relations section of our website, investors.duolingo.com, and also from time to time may use social media channels, including our Twitter account twitter.com/duolingo and our LinkedIn account [linkedin.com/company/duolingo](https://www.linkedin.com/company/duolingo), as an additional means of disclosing public information to investors, the media, and others interested in us. It is possible that certain information we post on our website and on social media could be deemed to be material information, and we encourage investors, the media, and others interested in us to review the business and financial information we post on our website and on the social media channels identified above, in addition to following our press releases, SEC filings, public conference calls, presentations, and webcasts. The information contained on, or that may be accessed through, our website and our social media channels is not incorporated by reference into, and is not a part of, this document.

DUOLINGO, INC. AND SUBSIDIARIES
UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS

(in thousands)	December 31, 2022	June 30, 2023
ASSETS		
Cash and cash equivalents	\$608,180	\$678,665
Accounts receivable	46,728	53,406
Deferred cost of revenues	35,041	42,720
Prepaid expenses and other current assets	7,234	10,150
Non-current assets	50,164	49,862
Total Assets	\$747,347	\$834,803
LIABILITIES AND STOCKHOLDERS' EQUITY		
Accounts payable	\$1,177	\$2,305
Deferred revenues	157,550	192,753
Other current liabilities	23,039	22,048
Long-term obligation under operating leases	23,503	21,292
Total liabilities	205,269	238,398
Total stockholders' equity	542,078	596,405
Total liabilities and stockholders' equity	\$747,347	\$834,803

DUOLINGO, INC. AND SUBSIDIARIES
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND
COMPREHENSIVE (LOSS) INCOME

(in thousands)	Three Months Ended June 30,	
	2022	2023
Revenues	\$88,386	\$126,839
Cost of revenues	23,869	33,788
Gross profit	64,517	93,051
Operating expenses:		
Research and development	34,217	47,947
Sales and marketing	15,277	17,734
General and administrative	30,057	32,235
Total operating expenses	79,551	97,916
Loss from operations	(15,034)	(4,865)
Other expense, net of other income	(539)	(268)
Loss before interest income and income taxes	(15,573)	(5,133)
Interest income	669	7,543
(Loss) income before income taxes	(14,904)	2,410
Provision (benefit) for income taxes	141	(1,315)
Net (loss) income and comprehensive (loss) income	\$(15,045)	\$3,725

DUOLINGO, INC. AND SUBSIDIARIES
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Six Months Ended June 30,	
	2022	2023
Cash flows from operating activities:		
Net (loss) income	\$(27,199)	\$1,143
Adjustments to reconcile net (loss) income to net cash provided by operating activities:		
Depreciation and amortization	1,944	3,396
Stock-based compensation expense	32,700	44,787
Gain on sale of capitalized software	-	(100)
Changes in assets and liabilities	25,844	17,545
Net cash provided by operating activities	<u>33,289</u>	<u>66,771</u>
Net cash used for investing activities	<u>(5,713)</u>	<u>(4,683)</u>
Net cash provided by financing activities	<u>9,662</u>	<u>8,397</u>
Net increase in cash and cash equivalents	37,238	70,485
Cash and cash equivalents - Beginning of period	553,922	608,180
Cash and cash equivalents - End of period	<u>\$591,160</u>	<u>\$678,665</u>

appendix

Reconciliation: Adjusted EBITDA and Adjusted EBITDA Margin and GAAP Operating Expenses and Non-GAAP Operating Expenses

Adjusted EBITDA is defined as net (loss) income excluding interest income, income taxes, depreciation and amortization, stock-based compensation expenses related to equity awards, IPO and public company costs, and acquisition earn-out costs. Adjusted EBITDA margin is defined as Adjusted EBITDA as a percentage of revenues. GAAP operating expenses consist of research and development, sales and marketing, and general and administrative expenses. These non-GAAP operating expenses are defined as the respective GAAP operating expenses excluding depreciation and amortization, stock-based compensation expenses related to equity awards, and, as applicable, IPO and public company costs and acquisition earn-out costs. These non-GAAP financial measures are used by management to evaluate the financial performance of our business and we present these non-GAAP financial measures because we believe that they are helpful in highlighting trends in our operating results and that they are frequently used by analysts, investors and other interested parties to evaluate companies in our industry. The following tables present a reconciliation of our net (loss) income and GAAP operating expenses, the most directly comparable financial measure presented in accordance with GAAP, to Adjusted EBITDA and Adjusted EBITDA margin and non-GAAP operating expenses, respectively.

(in thousands)	Q2 2022	Q2 2023
Net (loss) income	\$(15,045)	\$3,725
Less: Interest income	(669)	(7,543)
Plus: Provision (benefit) for income taxes	141	(1,315)
Plus: Depreciation and amortization	1,170	1,634
Plus: Stock-based compensation expenses related to equity awards (1)	18,494	24,258
Plus: IPO and public company costs (2)	107	-
Plus: Acquisition earn-out costs (3)	-	112
Adjusted EBITDA	\$4,198	\$20,871
Revenues	\$88,386	\$126,839
Adjusted EBITDA margin	4.7%	16.5%

Reconciliation: GAAP to Non-GAAP Operating Expense

(in thousands)	Q2 2022	Q2 2023
Total GAAP Operating Expense	\$79,551	\$97,916
Less: Depreciation and amortization	(897)	(1,232)
Less: Stock-based compensation expenses related to equity awards (1)	(18,484)	(24,244)
Less: Other Adjustments (2) (3)	(107)	(112)
Non-GAAP Operating Expense	\$60,063	\$72,328

Reconciliation: GAAP to Non-GAAP R&D Expense

(in thousands)	Q2 2022	Q2 2023
Total GAAP R&D Expense	\$34,217	\$47,947
Less: Depreciation and amortization	(463)	(409)
Less: Stock-based compensation expenses related to equity awards (1)	(5,920)	(11,319)
Non-GAAP R&D Expense	\$27,834	\$36,219

Reconciliation: GAAP to Non-GAAP S&M Expense

(in thousands)	Q2 2022	Q2 2023
Total GAAP S&M Expense	\$15,277	\$17,734
Less: Depreciation and amortization	(268)	(266)
Less: Stock-based compensation expenses related to equity awards (1)	(604)	(995)
Non-GAAP S&M Expense	\$14,405	\$16,473

Reconciliation: GAAP to Non-GAAP G&A Expense

(in thousands)	Q2 2022	Q2 2023
Total GAAP G&A Expense	\$30,057	\$32,235
Less: Depreciation and amortization	(166)	(557)
Less: Stock-based compensation expenses related to equity awards (1)	(11,960)	(11,930)
Less: Other Adjustments (2) (3)	(107)	(112)
Non-GAAP G&A Expense	\$17,824	\$19,636

Reconciliation: Free Cash Flow and Free Cash Flow Margin

Free cash flow represents net cash provided by operating activities, reduced by capitalized software development costs and purchases of property and equipment and increased by IPO and public company costs and taxes paid related to stock-based compensation equity awards, as we believe they are not indicative of future liquidity. Free cash flow margin is defined as Free cash flow as a percentage of revenues. 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. Free cash flow has certain limitations in that it does not represent our residual cash flow for discretionary expenditures and our non-discretionary commitments. 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.

(in thousands)	Q2 2022	Q2 2023
Net cash provided by operating activities	\$12,662	\$37,167
Less: Capitalized software development costs and purchases of intangible assets	(1,405)	(2,544)
Less: Purchases of property and equipment	(1,864)	(827)
Plus: IPO and public company costs (2)	107	-
Plus: Taxes paid related to stock-based compensation equity awards	380	544
Free cash flow	\$9,880	\$34,340
Revenues	\$88,386	\$126,839
Free cash flow margin	11.2%	27.1%

(1) In addition to stock-based compensation expense, this includes costs incurred related to taxes paid on equity transactions.

(2) IPO and public company costs include costs associated with the establishment of our public company structure and processes, including consultant costs, a one-time fee associated with the set-up of our initial proxy statement, and fees paid to consultants and Deloitte for work in connection with remediation of the material weakness disclosed in our Annual Report on Form 10-K.

(3) Represent costs incurred related to the earn-out payment on an acquisition.

Contacts

Investor Relations:

Deborah Belevan, VP of Investor Relations

ir@duolingo.com

Press:

Sam Dalsimer, Global Head of Communications

press@duolingo.com

