

Company Participants

Deborah Belevan - Vice President, Investor Relations

Luis von Ahn - Co-founder, Chief Executive Officer & Chairman

Matt Skaruppa - Chief Financial Officer

Conference Call Participants

Ralph Schackart - William Blair

Aaron Kessler - Seaport Research

Zach Morrissey - Wolfe

Andrew Boone - JMP Securities

Alex Sklar - Raymond James

Ryan MacDonald - Needham

Mark Mahaney - Evercore

Justin Patterson - KeyBanc

Chris Kuntarich - UBS

Deborah Belevan

Good evening, everyone and welcome to Duolingo's Fourth Quarter and Full Year 2023 Earnings Webcast. Today after market close, we released this quarter's shareholder letter, a copy of which you can find on our IR website at investor.duolingo.com.

On today's call we will have Luis von Ahn, our Co-Founder and CEO; and Matt Skaruppa, our CFO. They'll begin with some brief remarks before opening the call to questions. Analysts will be able to ask a question by using the raise hand feature. And please note this event is being recorded and all attendees are in listen-only mode.

Just a reminder that we'll make forward-looking statements regarding future events and financial performance, which are subject to material risks and uncertainties. Some of these risks have been set forth in the risk factors of our filings with the SEC. These forward-looking statements are based on assumptions we believe to be reasonable as of today and we have no obligation to update these statements as a result of new information or future events.

Additionally we'll present both GAAP and non-GAAP financial measures on today's call. These non-GAAP measures are not intended to be considered in isolation from a substitute for or superior to our GAAP results and we encourage you to consider all measures when analyzing our performance.

And with that I'll turn it over to Luis.

Luis von Ahn

Thank you, Debbie, and welcome, everyone. We delivered stellar 2023, surpassing the ambitious expectations we set out for ourselves at the beginning of the year. This was capped off by a record user growth, bookings and revenue profitability and free cash flow in the fourth quarter.

Stepping back, I'd like to put our 2023 performance in context by talking about how far we've come in the last few years. When we went public in July 2021, we laid out a plan showing rapid growth with increasing

profitability over time. In 2021 and 2022, we delivered 55% and 45% year-over-year revenue growth, respectively and had about breakeven adjusted EBITDA margins.

In 2023, we reached an inflection point, demonstrating our ability to get operating leverage and added over 13 points of adjusted EBITDA margin. That took our margin to over 17%. In short, we've been able to demonstrate that we can turn our incredible product into a profitable business.

Now how did we do this? We did this by making our app more fun, engaging and effective, which encourages learners to tell their friends and family about us. The more learners we attract to our platform, the more learners we convert to subscribers. And the more subscribers we have, the more money we have to invest in our courses to make them even more fun, engaging and effective and so on.

Since our IPO, we've added about 18 million daily active users and over 50 million monthly active users, most of whom have come to our platform through word of mouth. We've supplemented that organic growth with a cost-effective social-first marketing strategy, which earned us three billion social media impressions last year alone.

Now we accelerated DAU growth for 10 straight quarters from Q3, 2021 through Q4, 2023 and I'm proud of that. But as we've said before, we can't accelerate user growth forever. This Q1, we expect DAU growth to be closer to the mid-50s, which is still impressive given how large our user base has become.

For the full year 2024, we expect strong top line performance from rapid user growth and continued improvements in free-to-pay conversion. As an example of the work we're doing around conversion and monetization this year, we're experimenting with ways to help free users select the best subscription plan for them. We will test different names, appearances and packages to help users choose between our Free, Super and Max subscription tiers.

We're also putting more resources behind our family plan, which has higher retention and increases our platform LTV. Today our family plan has grown to about 18% of our subscriber base. And this year we started a dedicated family plan team who will look to capitalize on its organic momentum.

We will also make additional strategic investments to drive long-term growth. We will continue developing advanced content for English learners who make up the largest part of our addressable market. We will also continue to develop our math and music courses by expanding their content and making them even more fun engaging and effective for learners of all ages.

Last year we reached an incredible milestone. Our learners completed their 100 billionth lesson. Perhaps even more impressive is that we have about 90% share of global online language learning MAUs. And yet we still see so much more potential and opportunity ahead of us. There are hundreds of millions of language, math and music learners out there who have yet to sign up for Duolingo, and we're working on winning them over.

So while we're proud of how far we've come, I speak for everyone who works at Duolingo when I say we want to have more impact and we want to move faster. And that's what you'll see from us in 2024 and beyond as we continue to build our 100-year company. We're just getting started.

And with that I'll turn it over to Matt.

Matt Skaruppa

Thanks, Luis. I'll provide some additional color on what drove our outperformance this quarter and then I'll discuss our guidance for the year. As Luis shared we had a fantastic year capped off with record bookings and profitability in Q4.

We exceeded our bookings forecast in part because of the continued acceleration in user growth in the fourth quarter because we saw strength in our family plan throughout the quarter and because we saw better-than-expected performance in our New Year's promotion.

Our continued strength in user and subscriber growth drove bookings and revenue growth of 51% and 45% year-over-year, respectively or 49% and 43% on a constant currency basis.

Now turning to 2024. As Luis said, we want to continue doing this year what worked so well in 2023. And we have strong momentum which is why we feel good about our 2024 bookings outlook which has bookings growth of 28% year-over-year at the midpoint. This growth comes even as we lap the really extraordinary growth we had in 2023.

To give a bit more detail on our outlook we are guiding to a Q1 bookings growth of about 35% year-over-year. We expect our bookings growth rate to gradually step down throughout the year from Q1 to Q4. And as usual we expect that Q4 will be our biggest quarter in terms of dollar bookings.

More specifically from Q1 to Q2, we expect bookings growth to step down by about five points as we lap our exceptional results from last year. At current prevailing exchange rates, we expect foreign currency to have no material impact on Q1 or on full year 2024 bookings growth rates.

And we'll continue to make progress towards our long-term profit target. We expect to add an additional 500 basis points of adjusted EBITDA margin this year to reach 22.5% at the midpoint. Our adjusted EBITDA margin will vary a bit quarter-to-quarter given our bookings and hiring seasonality. Specifically, we expect adjusted EBITDA margin for Q2 to be lower than Q1; Q3 to be about the same as Q1; and Q4 to be the highest.

For the full year we are targeting an incremental margin at or slightly above our long-term adjusted EBITDA margin target of 35%. This year we expect to achieve our adjusted EBITDA margin expansion by getting operating leverage across all three cost categories of non-GAAP OpEx.

As to those categories of spend R&D will remain our largest category because we have several areas in which to invest this year because R&D is effectively a growth lever that drives word-of-mouth user acquisition for us and it's how we make our app more fun engaging and effective over time.

For sales and marketing we plan to continue improving efficiency by being creative and scrappy evidence of which you saw at the opening of this call with our five-second Super Bowl ad. We spent \$700,000 on that in total and yet earned over 60 million social media impressions. For G&A we expect to continue to get operating leverage as we scale.

As to how our operating leverage will spread throughout the year sequentially starting in Q1, we expect to see slight leverage in total non-GAAP OpEx as a percentage of revenue compared to Q4 2023. In Q2, we'll delever by a couple of points mostly in R&D given the timing of our hiring, the seasonality of our bookings and then we plan to see leverage again in both Q3 and Q4.

Finally, we ended the year with approximately 49 million fully diluted shares outstanding using the year end closing price. In 2024 we expect to end the year with about 1% net dilution from equity issued to employees which is similar to the dilution we had in 2023.

And with that I'll turn it back to Luis.

Luis von Ahn

Thank you, Matt. I want to close by congratulating our marketing team and our design department for their ingenuity to cheekily insert us into the most watched program in US television history with our Super Bowl ad which generated a lot of social buzz and brand love. And now we would be happy to take your questions.

I'll turn it back to Debbie to manage the queue.

Question-and-Answer Session

A - Deborah Belevan

Okay. Thanks Luis. And as I mentioned earlier if you have question, just use the raise hand feature. And the first question comes from Ralph Schackart of William Blair.

Ralph Schackart

Good afternoon, Luis and Matt. I just got -- just a couple of questions if I could. Later on the call you talked about the family tier I think you had about 18% now and you talked about having higher retention rates. Maybe

if you can kind of frame the retention here versus the rest of the business? And then more broadly how should we think about retention rates going forward versus how we trended in 2023. Then I have a follow-up.

Matt Skaruppa

Yes, happy to talk about the family plan retention rate. So, Ralph as you know we manage the business to LTV, so that's why retention is important. The family plan does have a materially higher retention rate on an annual basis compared to the other -- to the annual plan. And so -- and it also has a higher price point. So, it's just all around a higher LTV product.

So, as we shift more towards family plan we're just really trying to optimize the LTV of the platform over time. And we think there's a lot of opportunity to do that this year.

Ralph Schackart

Great. And then historically Matt I think you've talked about adjusting regional pricing. Maybe sort of give us a reminder of your strategy for the rollout of this year will be a phased approach, will be sort of country-by-country. Just any color you could add on that would be great. Thank you.

Matt Skaruppa

Yes. Yes. So, again pricing is another lever that we use from time-to-time we experiment with. This year I think the pricing story will be less around regional pricing. So, if you remember, we rolled out a pretty broad-based around the world regional pricing change in 2022. We've basically lapped that through -- in a revenue perspective throughout the course of 2023.

If we change prices this year -- we will from time-to-time with experiments. But the bigger overall price change for this year will be as we experiment with the three tiers. So, we saw a lot of demand at higher prices for our MAX offering. And we're going to experiment with that this year and see what happens and that's where I would expect to see more impact on pricing throughout the year as we roll that out.

Ralph Schackart

Thank you.

Deborah Belevan

Thanks Ralph. And the next question comes from Aaron Kessler of Seaport Research.

Aaron Kessler

Great. Thanks guys. A couple of questions. Maybe just first on the in-app purchases if you can give us your thoughts on growth there, how we should be thinking about that for 2024 as well as some of the other revenue lines within that including Duolingo English test and advertising? And then just anything we should be ways we should be thinking about paid sub conversion as well for 2024?

Matt Skaruppa

Sure. I'm happy to start and Luis can jump in. So, again, Aaron as you know the biggest line item of our business is subscriptions that's going to continue to be the focus both of revenue growth, bookings growth this year, but then also resourcing.

And so, when we look at ads, ads grew a lot slower than subscriptions in 2023. I expect that kind of ad growth delta to be relatively similar in 2024. I don't see ads picking up speed compared to our subscription product.

DET is still early in its journey. It's had enormous growth over the past several years, it's 30x'd. It's a little bit harder to forecast but it's typically grow slower than our subscriptions as well.

And then IAP is the last remaining piece. In 2023, it grew really impressively. And in 2024, I would expect it to grow nicely as well, but it grew so rapidly in 2023, hundreds of percent, I don't think it can grow as fast as that. So, I'd expect it to grow probably more in line with all the other revenue lines.

Aaron Kessler

Great. And just that pace of conversion any way to think about that in 2024?

Matt Skaruppa

Yes. So, the way we think about pace of conversion internally is on a cohort basis. And throughout 2023, essentially every cohort of new users had higher free-to-pay conversion.

So, we felt that that was evidence of really adding high-quality users to the platform. We don't see any reason that that's likely to change in 2024 as of now. What that means is at the aggregate level on a -- if you do the subs to the last 12 months MAU ratio that we publish, I wouldn't expect that to move all that much this year just given how rapidly our MAU base has scaled.

Aaron Kessler

Great. Thank you.

Deborah Belevan

And your next question comes from Zach Morrissey of Wolfe.

Zach Morrissey

Hi, thank you. I guess first just on the 2024 outlook on the user side of things just only kind of expecting a slight deceleration. Historically, we've seen -- you've called out kind of these one-off events like Barbie or House of the Dragon that's kind of been a nice tailwind for users.

So, just curious kind of what you're seeing today or kind of have line of sight to throughout the course of the year that kind of gives you comfort on the user growth kind of sustaining these really strong growth rates going forward?

Luis von Ahn

Yes. Thanks for the question. So, we're -- the majority of our growth comes from just making our product better. I mean it's mainly word of mouth and because of that it's actually quite predictable. I mean it's not perfectly predictable, it is quite predictable because we just know that our product just keeps getting better and better. So, we expect that to be the case in this -- throughout this year.

We're, of course, very proud of the fact that for 10 quarters in a row we accelerated the user growth. And that's what's kind of surprising that we just -- we always kept on thinking well maybe this is -- we're going to kind of not accelerate user growth anymore, but we did that for 10 quarters in a row.

And this time around, we expect kind of mid-50s going forward. And part of the thing that also helps us feel comfortable about this is we just have so much more of a TAM. I mean we're -- there's about two billion people in the world learning a foreign language. We have close to but slightly under 100 million MAU. So, there's just a lot more room to grow. So, we feel pretty good about that.

Zach Morrissey

Great. Thanks. And then, just one on -- I think you're leaning into AI to kind of help generate kind of content creation and personalization of some of these courses. Just curious for like a progress update there. And kind of -- I think there were press reports earlier this year in terms of that kind of helping also drive kind of cost efficiencies in the business as well. Just curious how you're thinking about the kind of opportunities to see kind of further kind of leverage from AI there?

Luis von Ahn

Yes. Well, first of all, the press reports, they're kind of a trigger point for me. The press reported that we did layoffs based on AI that is actually not what happened. We've always had a contractor force that these are some of hourly workers doing, stuff like translation and stuff like that for some of our content.

We did reduce our contractor force but this was not like full-time employee layoffs or anything like that. And yes, probably the biggest reason for the reduction of the contractor force was the use of AI. I mean we are -- wherever we can in the company, we -- if something can be done by AI, we're going to take the opportunity.

The places where we're using AI, there's kind of two big places. One is just in our content creation. And we're just -- not only are we reducing costs there, but probably even more importantly, we're able to do things a lot faster. And what's good about that is, it also allows us to experiment faster. So, it used to be the case.

For example, we have this feature that we're rolling out that's called DuoRadio that requires the generation of a bunch of data. If somebody had asked me to do DuoRadio five years ago, I would have told them you're crazy. It's going to take us 10 years to generate that data. Now, we know that it will take us a few months to generate that data. So now we're actually willing to create a feature based on it. So, it's the fact that we've accelerated this just opens the doors for a lot of stuff. That's what I'm most excited about. That's one place for AI.

And the other place is just generating features or putting up features that are interactive based on AI. So we have role play. We have explained my answer. We're starting to experiment with actually having a spoken conversation with one of our characters, and it's a really cool feature. So that's the type of stuff that you'll see us do. I mean we're leaning very hard on this and it's a great technology.

Zach Morrissey

Great. Thank you.

Deborah Belevan

And next question comes from Andrew Boone of JMP Securities.

Andrew Boone

Great. Thanks so much taking my questions. I wanted to ask about top-of-funnel trends as it relates to the mid-50s percent growth guidance that you guys gave. I understood last year, I had a bunch of eye-catch moments in terms of Barbie and everything else the clip you guys showed at the beginning. Can you just talk about top-of-funnel and maybe download growth as it relates to 2023 versus 2022 and then extrapolate that into 2024? Whatever top-of-funnel metric you want, Matt.

Luis von Ahn

Yes. I mean I can let Matt talk about some of the stuff, but we feel pretty good about top-of-funnel. Like I said, the vast majority of our growth comes from just word of mouth. And these are -- there are some nice events like the Barbie and stuff like that, and they're good. But still it is the case that most of it just comes from people telling their friend or a family member to download Duolingo that just remains pretty constant. So, we see -- from what we see just looks very strong. I don't know Matt, if you have anything else to say.

Matt Skaruppa

No, I think that's right. I think we're getting -- we have visibility, obviously, into Q1 and that's the mid-50s. And being in the 50% to 60% range and seeing that go up or down, the point we are trying to make is just that it's not always going to accelerate from here. In terms of top-of-funnel, I think I'd just remind everyone that like there's brand new to the platform users and then there's resurrected users, which we call folks -- we call folks who haven't been using the platform for the past 30 days but come back resurrected.

Those are about an equal proportion on any given day. And so, it's a word of mouth that Luis talked about, but then it's also just making sure that folks are reminded that they like Duolingo and they'll come back even if they haven't been using it for a while and that's a big portion of this. So like Louis said, like we feel pretty good about it. And I don't -- we don't see anything right now that says, it's going to be all that different than what we're talking about.

Andrew Boone

And then I wanted to ask about the tiers that you guys are testing. I understood that you guys are going to have a premium kind of standard and a free model. But what about the opportunity to just take price within the US, right? I understood you guys were regionally – how do you guys think about pricing more broadly for kind of US, where you guys are seeing that strong demand. Thanks so much.

Luis von Ahn

Yes, generally with pricing I mean we're going to experiment. I mean we're pretty open to price experimentation and we do that. And just to remind you in terms of our improvements in monetization, we just have a lot of levers where we can pull and we try to order them by kind of return on investment. Pricing is one lever.

We have the multi-tier strategy as another lever. We have the family plan as another lever. We have all these. And so the teams that are working on this have a long list of things and it's ordered by return on investment pricing. We will probably see us experiment pricing not just in the US but worldwide. And I just can't tell you what the results of those experiments are going to be because I just don't know myself. But you'll see us experiment for sure.

Andrew Boone

Thank you.

Operator

Next question comes from Alex Sklar Raymond James

Alex Sklar

Thank you. Luis, I know it's a bit early to talk about the results from having some of the advanced English content that you had talked about in the shareholder letter but 17 courses now with advanced English available. How do you plan to kind of grow the awareness of the – any formal marketing plans behind that? And then thinking about broader monetization now that you have that in there.

Luis von Ahn

It's an excellent question because it's something that we are really talking about. So just to put things in context, if you look at the larger language learning market like the market as a whole, by far, the largest number of learners and also the largest amount of spend comes from English learners. It's like 80%, give or take. That is not quite true in our platform. So this is why we see this as a major opportunity.

Now the reason that hasn't been quite true in our platform is because our English courses have not had very advanced content. We actually have a different English course based on your native language. So we have an English course for Spanish speakers and English course for Chinese speakers, et cetera. And they went to varying degrees of proficiency.

The first thing we needed to do, if we really wanted to increase our business among English learners is take all of these courses to a more advanced levels at least have the content there. I'm very happy to say that we have now put the content there. That's good. And we in fact see that the number of users, this is one of the nicest graphs that we have in the company is the number of users that are interacting with our advanced English learner is basically up and to the right. So we see that users are starting to interact with it. And we think there's a lot more room there.

Now adding the content was just the first step in a multi-step strategy because first you have to add the content. The second thing – the second problem we needed to solve and that is one we are currently solving. It has not yet been solved is it turns out English learners are a little different than learners of most other languages.

For most of the language, learners of French, learners of Spanish, we have a pretty good idea of what they know before they come to Duolingo and usually by the way they know very little. And they just – we have a pretty good idea of what they know. So it's relatively easy to place them in the course.

English learners, because English is such a cultural language for the world, people know this weird patchwork of knowledge where they Æ– most of them took some amount of English in like middle school or high school but also they watch some movies but also they've listened to some Taylor Swift song, but also they Æ– so they have Æ– they just have this weird patchwork of knowledge and we have not done a great job when they come in and placing them at the right spot. So that's one thing that we're working on.

And when we're able to do that I think that we're going to be a much better product for people who come in to learn English because the vast majority of English learners have some prior proficiency in this kind of weird patchwork way. So that's step number two and that's what we're working on.

Step number three is what you mentioned, we do have to get the word out that we're good for advanced English learners. That is not currently as well known as for either beginner English learners or other languages. So you're probably going to see us do some amount of marketing for that.

And then of course the last step is being able to capitalize in terms of getting them to subscribe. But we need to do the first few steps before we do that. So my sense is that it's going to be 2024 and 2025, where you see us kind of really grow this user base and somewhere in 2025 we'll start really capitalizing on this. You may see some amount this year but my sense is more will come in about a year.

Alex Sklar

That's great context. Just as a follow-up, Matt. Just given, what you've talked about tonight in terms of the family plan booking success you're going to lean into that a little bit more. It sounds like in the coming year continued international growth. How should we think about the shape of the blended ARPU heading into 2024?

Matt Skaruppa

Yeah, it's a great question. So I'll just give you my normal disclaimer, which is we don't run the business on ARPU. We run the business on platform LTV and experiments to drive bookings. That said ARPU, obviously, comes out of that and we pay attention to it. In 2023, the ARPU, because as I mentioned we are lapping the price change we did in 2022 ARPU about every quarter went down between 7% and 8%, more or less in 2023 except for Q4, which went down by about 4%. And then we expect Q1 to be a little closer to zero and then lap it throughout the rest of the year. So that's roughly our trend.

Now that will change depending on the experiments. So if we have a successful set of experiments on a three-tier strategy that could raise ARPU. Louis already mentioned pricing experiments as well, but that's the current course and speed.

Ralph Schackart

Awesome. Thank you both.

Matt Skaruppa

Thank you.

Deborah Belevan

Next question comes from Ryan MacDonald of Needham.

Ryan MacDonald

Thanks for taking my question, and congrats on yet another great year. Louis I'm curious you, obviously, launched math and music into the core app late in 2023. I'm curious as you're monitoring the progress there, I think learners have the capability to complete their Duolingo each day, not just from language but in math and music. And just curious what you're seeing in the early days on the progress there? And if we're getting to a stage yet especially with math where you can start to then see enough usage where you turn the screw on monetization there?

Luis von Ahn

Yes, a great question. So yes to put things in context, we did -- we added math and music as courses into the main language app into our main approximately, the Duolingo approximately, really about a quarter ago. And what that means is that it's just as you said basically all of our growth mechanics work for math and music. So you can complete your streak by doing a math lesson with math users compete in the leaderboard et cetera and musically compete. So basically all the growth mechanics come for free by having added math and music to the main app. This is why we did that. We're very happy with the results so far.

They are obviously -- these courses obviously are much smaller than our language courses because we're well-known worldwide as a language learning app. We're not yet as well known as a math app or a music app. So they're much smaller than our language courses. But even if that's the case and even it's only been for like three months, our belief is that we're either already the largest or among the top largest in terms of DAUs of apps where you can learn math or music, and that just shows you the power of our platform.

Now even though that's true these are so much smaller than language learning that for the -- my sense is for this whole year you're probably just not going to see a lot of impact. I mean these are growing quite a bit. It took us 12 years to get there for language learning. The hope is it won't take us 12 years to get there for math and music, but it will probably take us a few years. I mean these things are still in the oven.

But the results that we have so far, we're very happy with and they are much better than the results we had after we launched language learning. So if you rewind 10 years ago and you look at language learning these courses are just way ahead. So we're very happy with that. But again these things are still in the oven.

Ryan MacDonald

That's helpful. Maybe this one is a bit more qualitative I guess. Obviously you talked about the success you've had with large viral moments or cultural moments over the past year. And maybe some of that came by chance, some of that being strategic. But are you taking any learnings from that this in 2023 and applying that into 2024, maybe be more proactive in how you're creating that marketing strategy around let's say you've got a large Dune release coming up this week and that seemed to be a highly anticipated to try to position yourself better for some of those moments moving forward?

Luis von Ahn

Yeah. I mean, it's an excellent question. I think it's true that some of these things we just can't control. I mean there is just -- it comes from us. We get a lot of inbound we are in a very nice position where brands or movies or TV shows think of us and they come to us. We can't control that much, but it's awesome that that happens.

That said our marketing team has just gotten so good at knowing where to get involved, what to comment on that even though some of these things we can't control, many others, we can. And many of the other things that may just seem like they were just out of the blue were things that were fully planned by our marketing team. And so we're just going to continue doing that. I mean there -- I mean, I've seen the plans. I don't want to spoil the surprises, but we have a robust plan for the rest of the year in terms of viral moments.

Now, not all of them will work. We'll try some stuff that will probably flop, but some of it will work, and we feel very good about that. So, I think just the team has just gotten really good at being in the zeitgeist. And so yeah, I'm very happy with that. My meetings with our CMO are usually awesome because he always has really funny videos to show me of things that they're preparing.

Ryan MacDonald

Well, congrats again. Thanks for taking our questions.

Luis von Ahn

Thank you.

Deborah Belevan

Thanks, Ryan. And the next question comes from Mark Mahaney of Evercore.

Mark Mahaney

I'll ask two questions, please. First, on the incremental margins that you're guiding to for this upcoming -- for this year of 35%, so those are very intrinsically robust EBITDA margins. They are lower than what you did in 2023. Is there anything to read into that? Is there any sort of structural change in the business in terms of the cost requirements of new growth areas or something like that? And then secondly, you've given interesting disclosures in the past on how growth in terms of bookings or revenue in your most mature markets, the US compares with that on your global average. Any update you could provide there? Like how does the US bookings growth and North American bookings growth compare with that of the business as a whole? Thank you very much.

Matt Skaruppa

Thanks, Mark. So the adjusted -- incremental adjusted EBITDA comment in the guide, look, our belief is that we want to make every year progress towards our long-term margin. To do that, you have to be at or above your long-term margin in terms of incremental margin. And so that's what we're doing this year. As we talked about on some calls last year, companies that we respect in our industry, that go from being kind of not profitable to then materially profitable, usually make a big jump in their first year where the incremental margins are a lot higher.

And then that usually comes back down towards their long-term margin. So I don't think we're paving new ground there. I think that's normal course.

In terms of why that is though, I just want to remind you. Like the reason is, because we have a ton of runway ahead of us in our core markets, and we're adding math and music. And we're just excited about that investment in our R&D function. And so there's really nothing else to read into it other than we're excited about the opportunity ahead of us, and we're going to continue to invest in kind of our core R&D and in business in that regard and still make progress though every year towards our long-term margin.

And then can you remind me of the second question? Oh, it was the disclosure around geography. So historically, what we've talked about usually is the DAU growth. And so what we're looking at is when we grow so rapidly, is that what we call or consider high quality and broad based? Broad-based, meaning countries that are big for us like the US or some European countries, are those growth rates close to the average growth rate or not? And they can -- they still are close. And then we look at the conversion from free to paid to see how high quality those users are and are those cohorts globally trending the right way over time, and they have been. And so our growth in Q4 was still broad-based and high-quality.

Mark Mahaney

And then would you -- one last question. Would you call out any interesting international markets? English language is -- can be such a -- can have such a material impact on earnings generation for people in multiple countries outside of the US. I know some of us here need to improve our English. I do. But are there particular international markets you'd want to call out as showing particularly interesting organic growth for Duolingo?

Matt Skaruppa

Yeah. We bucket the world into kind of four big segments. And one of our segments is Southeast Asia, in Japan and then including China as well. And then Europe, both of those have shown really robust growth. Japan in particular has grown really nicely. We've seen a lot of countries in Europe grow nicely. So, it's hard to single out one particular country, just given how broad-based it's been, but those are a couple I'd say, have grown really nicely over the past year.

Mark Mahaney

Thank you, Matt.

Matt Skaruppa

Welcome

Deborah Belevan

So our next question comes from Justin Patterson of KeyBanc, who I understand is driving and not going to be on video.

Matt Skaruppa

Be careful, Justin.

Q – Justin Patterson

Yes. Thank you very much. And I'd also like to echo Louis's thanks to the marketing team for allowing me to cheekily insert myself into the call, with this avatar while -- I try Matt. I try. So just a big picture one for you and Luis. You've had the new user interface out for over a year now how much more the ceiling, do you think you have to go here with the product and growth teams as you just look at the opportunity to improve KPIs. It just feels like you've had a much broader canvas to A/B test against and you also have a much larger DAU base that's grown over the past year.

Luis von Ahn

Yes. It's an excellent question. I mean, we're the teams that are dedicated to trying to figure out how to grow faster are just -- they're firing on all cylinders. They -- what you'll see -- you'll see us, we have a portfolio approach where you'll see us try a lot of kind of these really small A/B tests that end up compounding a lot. So we're definitely going to do that. But we also see us, try bigger things. I mean one of the things that you probably see more of in the coming months or years is, just our app becoming more and more social. So, you'll see that. We're spending effort on that.

You're also going to see us experimenting, with placing people better. This is what I was talking about with the English learners. You're also going to see us experimenting, with just teaching conversation a lot better. And so these are kind of the big things that we're doing. But really there's a lot of stuff, that they're working on with literally hundreds of A/B tests per month. That pace has not decreased at all since, since the last few years. In fact, the pace is increasing.

Q – Justin Patterson

Got it. Thank you.

Deborah Belevan

Great. Next question comes from Chris Kuntarich of UBS.

Q – Chris Kuntarich

Great. Thanks for taking the question. Can we just unpack some of the strength – yes, just a little bit more color on the strength in the family plan that you saw in 4Q. And maybe can you just talk about, how we should think about or what you all are seeing as far as family plan adoption from English learners versus non-English learners?

Matt Skaruppa

Yes. I'm happy to start and then Louis can jump in on the last one. So, when we talk about the strength in the family plan, what's been surprising is that we haven't actually had a ton of resources devoted to taking that product and adding and doing our normal A/B testing on that as a tier or as a subscription bucket. What we did was we released it, we were excited about it and it's grown really naturally organically.

So when we talk about strength in Q4, it grew over 100% year-over-year. So just an enormous amount of organic demand for that product, because it's a fun product. You want to do Duolingo with friends and family, you want to do math and music with friends and family. It's just kind of a natural fit. And that's why this year, I can't lay out specific road maps other than what Luis has already talked about generally, like making it more social just making it a more engaging experience. But we're going to have more devoted resources to it this

year, which gives us confidence that that could really grow nicely even above and beyond kind of that organic demand that we're seeing in the platform.

Luis von Ahn

Yeah. I'm generally very excited by the roadmap of -- it will just be much better. I mean right now it's -- we just put a plan out there. And there were all kinds of things for example, we just solved the really dumb bug, that was in the family plan your children were there but you actually couldn't see their name. It's just -- that was just dumb. So this is -- we're just starting with that, but we are going to see us just making it a much more robust product.

And you asked about, the difference between English learners or not in terms of adoption of the family plan? I don't think there's anything different in terms of family plan versus the rest of our subscriptions. I mean, generally we see higher penetration of subscription in wealthier countries. Certainly the US has higher penetration. And usually English learners come from less wealthy countries. So there's probably a -- basically family plan is no different than the other subscriptions.

Chris Kuntarich

Got it. Very helpful. Maybe just one follow-up, any way to think about kind of the shape of marketing spend or sales and marketing expense throughout the year? Thanks.

Matt Skaruppa

Yeah. For sure, so I mean in general you should continue to expect two things from our sales and marketing spend. The first one is that, it should increase on absolute dollars but it should grow obviously slower than bookings. And so historically, I don't think there's going to be anything from a seasonality perspective, this year that would be all that different than last year.

So you typically see us spend a bit more in like the Q3 timeframe for example that's usually our summer campaign back-to-school area. But I think the seasonality for sales and marketing should go roughly as it has in the past couple of years.

Chris Kuntarich

Okay. Thank you.

Deborah Belevan

And our next question comes from Curtis Nagle at BofA, who is also not able to be on camera. Do we lose Curtis? Okay. I don't see Curtis in the queue anymore. So that looks like our last question. I think I'll turn it back to Luis to wrap-up.

Luis von Ahn

Well, thank you, Debbie and just thank you all for joining us. And we look forward to speaking to you next quarter. Please do your Duolingo lessons. We expect you to have a perfect streak next quarter. Have a great evening.

Deborah Belevan

Thanks everyone.

Matt Skaruppa

Thank you, guys.