

Company Name: Facebook  
Company Ticker: FB US  
Date: 2017-02-01  
Event Description: Q4 2016 Earnings Call

Market Cap: 384,927.33  
Current PX: 133.23  
YTD Change(\$): +18.18  
YTD Change(%): +15.802

Bloomberg Estimates - EPS  
Current Quarter: 1.060  
Current Year: 5.269  
Bloomberg Estimates - Sales  
Current Quarter: 7687.710  
Current Year: 36989.867

## Q4 2016 Earnings Call

### Company Participants

- Deborah Crawford
- Mark Elliot Zuckerberg
- Sheryl K. Sandberg
- David M. Wehner

### Other Participants

- Douglas T. Anmuth
- Brian Nowak
- Eric J. Sheridan
- John Blackledge
- Mark A. May
- Justin Post
- Mark Mahaney
- Heather Bellini
- Peter C. Stabler
- Kenneth Sena
- Brian P. Fitzgerald
- Scott Devitt
- Anthony DiClemente, CFA

## MANAGEMENT DISCUSSION SECTION

### Deborah Crawford

#### *GAAP and Non-GAAP Financial Measures*

During this call, we may present both GAAP and non-GAAP financial measures

A reconciliation of GAAP to non-GAAP measures is included in today's earnings press release

### Mark Elliot Zuckerberg

#### *Business Highlights*

##### *Revenue*

- This was another good quarter and a good end to 2016
- Our community continues to grow, and now with nearly 1.9B people using Facebook every month and more than 1.2B people using it every day
- We've seen continued growth and engagements on our platform, and our ads business is doing well, too

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- Total revenue grew by 51% y-over-y to \$8.8B, and advertising revenue was up 53% to \$8.6B.

### ***Global Community***

- Facebook stands for connecting people and creating a global community
- And, in 2016, more people than ever made their voices heard
- We saw billions of conversations about everything from important elections to the Olympics to breaking news stories around the world
- And more people are taking advantage of new tools to connect and share on our family of apps, especially with video

### ***Shareholders***

- 2016 was also a year that reinforced the importance of connecting the world
- Today is the five-year anniversary of the day we filed to go public
- In our letter to potential shareholders, I wrote that there is a huge need and a huge opportunity to get everyone in the world connected, to give everyone a voice and to help transform society for the future
- I believe that now more than ever
- And as the largest global community, I see our responsibility as very important, and we will continue to focus on doing everything we can to bring the world closer together

### ***Megatrend***

- I want to give you an update on our progress over our 3, 5 and 10-year time horizons, with a particular focus on what we're going to be doing over the next three years
- I've said before that I see video as a megatrend on the same order as mobile
  - That's why we're going to keep putting video first across our family of apps and making it easier for people to capture and share video in new ways

### ***U.S***

- To make it easier to find and watch videos, we've added a tab at the bottom of the Facebook app with top videos and recommendations
- We've already rolled the tab out to everyone in the U.S., and we're planning to bring it to more countries soon
  - We're also improving live video as more people use it
- New Year's Eve was our biggest live moment ever, with more people going live than at any other time since we launched the product
- We're experimenting with Live 360 video, audio-only live for people with slower connections, and live face masks and more camera effects, and we'll have more updates soon

### ***Ecosystem***

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- Finally, we're looking for ways to grow the ecosystem of video content on Facebook
- We want people to think of Facebook as a place for interesting and relevant video content from professional creators as well as their friends
- Last year we started to invest in more original video content to help seed the ecosystem, and we're planning to do more in 2017
  - We're also focused on building a more informed community
- We see Facebook as a community, and ourselves, our role, as supporting that community
- We don't write the news that you read, but we want to be a place where people can access information and have meaningful conversations, and this is a responsibility that we take very seriously

### ***News Feed***

- In the past, we've taken steps to reduce spam and clickbait, and now we're approaching misinformation and hoaxes the same way
- In Q4, we started working with third-party fact-checkers in the U.S. to flag disputed stories and make them less likely to appear in News Feed
  - We've made it easier to report and identify misinformation and we're working to build stronger ties between Facebook and the news industry
- Our primary goal here is to do the right thing for our community
- If we can help people stay informed and make Facebook a better place to understand what's going on in the world, then we think that's going to make our community stronger and a more positive force for good in the world
  - So that's the three-year update

### ***Instagram***

- Over the next five years, we're going to keep building ecosystems around our apps that a lot of people are already using
- Growth and engagement on Instagram have been strong
- We announced in December that Instagram now has over 600mm monthly actives and recently passed 400mm daily actives
- Instagram Stories reached 150mm daily actives just five months after the launch, and we've added new features like Boomerang and Live into Stories and I'm excited to see that continue to grow

### ***Messaging Services***

- Our messaging services are making good progress as well
- In Q4, Messenger launched a new camera, group video chat for up to 50 people, and games. 400mm people now use voice and video chat on Messenger every month

### ***WhatsApp***

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- WhatsApp is growing quickly, too
- We recently reached 1.2B monthly actives and more than 50B messages are sent through WhatsApp every day
- In the last quarter, we also added the ability to make video calls in the app

### ***Connectivity Lab***

- Over the next 10 years, we're going to continue to invest in these platforms and technologies that is going to give more people a voice and make sharing even more immersive
- Through our efforts with Internet.org, we have now connected more than 50mm people to the Internet
- And, in November, our Connectivity Lab set a world record by transmitting 20 gigabits per second over 13 kilometers using the same amount of power that it takes to light a single light bulb
- Ultimately, this technology is going to make it into the solar-powered planes that we're building to beam Internet to parts of the world that aren't connected

### ***AI***

- On artificial intelligence, we developed a new technique called style transfer that uses AI to study a painting and then can take your photos and videos and draw them in that style in real time on your phone
- And if you post on Facebook looking for a place to eat or suggestions for where to go, we can now use AI to understand the text of your post and understand what you're asking and [ph] surface (07:20) recommendations from the comments

### ***VR***

- We're still early in our 10-year plans for virtual reality, but we've made some good progress
- In December, we shipped our Touch controllers, and the community response has been very positive
- Samsung announced that they've now shipped more than 5mm Gear VRs
- And we're bringing more social experiences to VR with apps like Oculus Rooms for Gear VR
  - We're going to keep making big investments in VR content, and I'm excited about what's coming in 2017, from new games to more immersive educational experiences

### ***Data Center***

- As I said in our call last quarter, we're going to continue to invest and hire aggressively to help improve our products, but also to build the infrastructure that will help us grow in the future
- A few weeks ago, I visited our newest data center in Fort Worth, Texas
- It's going to be the biggest data center we've built, powered by 100% renewable energy, and it's a great example of the investments that we're making to help us serve our community even better
  - So we've made some good progress, but we have a lot more to do to help bring the world together
- I want to thank our community, our teams, our partners, and all of you for being a part of this journey with us

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## Sheryl K. Sandberg

### *Operating Highlights*

#### *Revenue*

- We had a strong fourth quarter capping off a great 2016
- Q4 ad revenue grew 53%
- Mobile ad revenue reached \$7.2B, up 61% y-over-y, and was approximately 84% of total ad revenue
- Our growth this quarter was broad-based across all regions, marketer segments, and verticals

#### *Instagram Business Profile*

- We're really excited to announce today that 65mm businesses are using our free Pages product and 5mm are using Instagram Business profiles
- More and more of these businesses are becoming advertisers with over 4mm advertising on Facebook and over 500,000 on Instagram
- As a result, our revenue base is becoming more diverse
- In Q4, our top 100 advertisers represented less than a quarter of our ad revenue, which is a decline from Q4 last year
- We continue to focus on our three priorities:
  - Capitalizing on the shift to mobile, growing the number of marketers using our ad products, and making our ads more relevant and effective

#### *Mobile*

- First, capitalizing on the shift to mobile
- In Q4, we saw consumers use mobile for more of their holiday shopping. comScore found that mobile drove over \$1B in total Cyber Monday sales for the first time ever
- Marketers are increasingly seeing mobile as the opportunity it is
- In 2016, we saw more marketers prioritizing mobile and especially mobile video

#### *Cookie Layer Crunch*

- People consume video differently on mobile, so the best marketers are optimizing their creative
- For example, Hershey's used Facebook Live and Video ads for the launch of their Cookie Layer Crunch
  - They optimized their video ads to grab attention in the first few seconds and used captions for people who were viewing without sound
- Nielsen Brand Effect measured an 11 point lift in brand awareness and a 20 point lift in ad recall
- We are helping more businesses connect with more people on mobile, both on Facebook and off
- Last month, we announced that advertisers can reach over 1B people a month on the Audience Network

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### ***Ad Product***

- Our second priority is growing the number of marketers using our ad products
- It's clear that businesses of all sizes are using our platforms to reach customers
- Two weeks ago, I visited Holzconnection, a family-run furniture maker in Berlin
- When competition increased several years ago, the owner worried that he might have to close stores
- His son joined the family business and convinced his father to market on Facebook
- Holzconnection didn't change anything about their traditional craft, just the way they reached customers
  - Since then, they've opened five new locations both domestic and internationally
- We want to help more small businesses grow, so we've invited companies including Holzconnection to participate in Small Business Councils around the world

### ***Holiday Inventory***

- We continue to invest in making our free and paid products easier to use, expanding our online tutorials and offering creative tools to businesses of all sizes
- For example, the owners of Distinctive Gardens, a gardening center in Illinois, watched one of our online tutorials and then used their mobile phone to shoot a holiday-themed video
  - They sold out their holiday inventory

### ***Client Demand***

- Our third priority is making our ads more relevant and effective
- Our goal is to drive value for our clients
- As we grow the diversity of businesses on our platform, we've invested in building ad products that meet a broad set of objectives, from building brands to moving products off shelves online and in-stores

### ***Dynamic Ads***

- To make our ad products as relevant and effective as possible, we're increasingly tailoring them by vertical
- In 2016, we invested in Dynamic Ads, which allow advertisers to automatically promote products from their entire catalog
  - We expanded Dynamic Ads across Facebook, Instagram, and the Audience Network, and tailored them for verticals like travel and retail
- Dynamic Ads for travel enable businesses to show ads based on dates and destinations people are interested in, while Dynamic Ads for retail show people the products available at nearby locations in real-time
- Last month, we introduced Dynamic Ads for broad audiences to help businesses reach new customers based on their interests on Facebook and online behavior
- We're going to continue to work on building effective ad products and proving the value they drive

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### ***Investments***

- We know that measurement is important to building advertiser trust
- Last year, we discovered several metrics issues
- And while no billable metrics were affected, we took action to fix the errors and reviewed all of our metrics
- We also expanded our partnerships with third parties, given the important role they play in verification
- We're going to continue to invest in measurement, including third-party partnerships, in the upcoming year

### ***Holzconnection***

- We believe our strong 2016 is because of the value we drove for businesses on our platforms
- We're inspired by the entrepreneurs we work with, like the owners of Holzconnection and Distinctive Gardens, and we're grateful for the opportunity to help them reach customers, grow their businesses, and hire more people
  - With only a small fraction of the businesses on Facebook and Instagram advertising, we know we have a lot of opportunity and hard work ahead
- In 2017, we'll stay focused on helping businesses of all sizes reach customers around the world and grow

## **David M. Wehner**

### ***Financial Highlights***

#### ***Revenue and GAAP Net Income***

- 2016 was another year of strong, profitable growth, and we continued to invest in building our business for the long term
- Full year 2016 revenue was \$27.6B and grew 54% or 56% on a constant currency basis, and we generated over \$10B in GAAP net income

#### ***Community Metrics***

- Let's start with our community metrics
- In December, 1.23B people used Facebook on an average day, up 189mm or 18% compared to last year. 1.86B people used Facebook during the month of December, up 269mm or 17% compared to last year
- In addition to our ongoing Internet.org and Android product efforts, we benefited from an increase in third-party promotional free data plans in Asia and rest of the world

#### ***Mobile***

- Mobile continues to drive our growth, with 1.15B people accessing Facebook on mobile on an average day in December, up 212mm or 23% compared to last year
- Given that the vast majority of monthly and daily usage now occurs on mobile devices, my comments will focus on total MAU and DAU beginning next quarter



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- And we do not plan to include mobile and mobile-only usage breakdowns in our supplemental investor materials after this quarter

### ***GAAP Results***

- Turning now to the financials
- My prepared remarks will focus on our GAAP results unless otherwise noted
- As I have noted before, we focus on GAAP results because stock-based compensation plays an important role in how employees are compensated in our business and industry more broadly, and we view it as a real expense
- Q4 total revenue was \$8.8B, up 51%
- Q4 ad revenue was \$8.6B, up 53% or 54% on a constant currency basis

### ***Mobile ad Revenue***

- Mobile ad revenue was \$7.2B, up 61%, and represented approximately 84% of total ad revenue
- Desktop ad revenue grew 22%, despite a decline in desktop usage, helped by our efforts to limit the impact of ad blockers on advertisements served on personal computers
- The same supply and demand factors we have discussed in the past continue to drive our mobile ads revenue
- On the demand side, we continued to improve our targeting, measurement and ad formats to drive strong results for marketers
- As Sheryl mentioned, these efforts are working for an increasingly broad set of advertisers

### ***Supply Side***

- On the supply side, growth in users, time spent, and ad load also contributed to our strong results
- In Q4, the average price per ad increased 3% and the total number of ad impressions served increased 49%, driven primarily by mobile feed ads on Facebook and Instagram
- Payments and other fees revenue was \$180mm, down 12%
- Q4 total expenses were \$4.2B, up 29%
- We ended the year with approximately 17,000 employees, up 34% compared to last year and an increase from the 31% growth rate last quarter

### ***Operating Income and Tax Rate***

- Q4 operating income was \$4.6B, representing a 52% margin
- Our tax rate was 21%
- Note that our tax rate reflects our early adoption of a new accounting standard ASU 2016-9
- Under this standard, the tax benefit related to the difference between the vesting price and the grant price of RSUs is now reflected in our income tax provision, whereas previously it was reflected as an adjustment to equity
  - This is purely an accounting convention change and does not change the cash taxes we pay



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- Excluding the impact of this new standard, our Q4 GAAP tax rate would have been approximately 26% and in line with the guidance we provided on Q3 call

### ***Net Income***

- Net income was \$3.6B or \$1.21 per share
- Full year 2016 CapExs were approximately \$4.5B, up 78%, as we continue to invest to support the rapid growth of the business around the world

### ***FCF***

- Over the course of 2016, we expanded four of our existing data centers and began construction of four new data centers
- In 2016, we generated over \$11.6B in FCF and ended the year with \$29.4B in cash and investments
- Also note that the new accounting standard changed how we present operating cash flow and the FCF calculation
- In the past, we treated the excess tax benefit as a financing cash flow item and thus was not included in either cash flow metric
- Adoption of this standard also resulted in a retrospective adjustment to certain 2016 quarterly financial line items
- For more detail on these adjustments, please refer to the supplemental earnings slides available on our investor website

### ***Outlook***

#### ***Revenue***

- Turning now to the outlook
- First, on revenue, the outlook is unchanged
- Consistent with my comments on Q3 call, we continue to expect that our ad revenue growth rate will come down meaningfully in 2017
- The factors driving this expectation remain the same
- We also expect that our full year 2017 payments and other fees revenue will decline compared to full year 2016

#### ***Expenses***

- Second, on expenses
- Consistent with what I said last quarter, we expect that 2017 will be an aggressive investment year
- We saw hiring growth accelerate in Q4, and we plan to accelerate hiring further in 2017 from the 34% growth rate
- In addition to head count, we expect to increase investments in R&D, content, sales and marketing and other areas as we execute on our near, medium and long-term priorities

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### ***Share-Based Compensation Expenses***

- We expect that full year 2017 total GAAP expenses will grow 40% to 50% compared to the full year 2016
- We anticipate that full year 2017 share-based compensation expenses will be in the range of \$3.9B to \$4.1B, approximately \$1.3B of which is related to acquisitions, most notably WhatsApp

### ***CapEx***

- We also expect full year 2017 amortization expenses to be approximately \$700mm to \$800mm
- Accordingly, on a non-GAAP basis, we would expect total expenses to grow approximately 47% to 57% compared to the full year 2016
  - We anticipate our expense growth rates will increase over the course of the year
- We expect our full year 2017 CapExs will be in the range of \$7B to \$7.5B, as we fund the expansion of data center capacity and office facilities to support the continued rapid growth of our business

### ***Tax***

- Turning now to tax
- At current stock prices, we expect that our full year 2017 GAAP and non-GAAP tax rates will be one to two percentage points lower than our respective 2016 tax rates
- Let me note two additional factors with the new standard
- First, our tax rate will vary based on stock price
- And secondly, we anticipate the tax rate will start to lower in Q1 and then trend up throughout the year

### ***Stock Repurchasing***

- Before wrapping up, as a reminder, in Q4, our board of directors authorized \$6B stock repurchase program beginning in 2017 with no fixed expiration date
- Our main priority is to invest aggressively to grow the business while maintaining a strong cash position
- At this time, the company's strong balance sheet and financial performance puts us in a position to make opportunistic repurchases of our common stock from time to time to help offset the dilution incurred through equity issuance

### ***Conclusion***

To conclude, 2016 was a strong year for Facebook in terms of community growth, engagement, product innovation and the growth of our advertising business

We believe we have significant opportunities ahead of us as we invest in our mission to make the world more open and connected

## **QUESTION AND ANSWER SECTION**

<Q - Douglas T. Anmuth>: Mark, it's been a couple of quarters that you've talked about video first. Can you just talk about the strategic importance of longer-form content? And then also how do you think about that in terms of

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distribution platforms both on the Facebook mobile app and then through other distribution formats as well? Thanks.

**<A - Mark Elliot Zuckerberg>**: We're focusing more on shorter-form content to start. So the thesis that we have now is that there were different parts of short-term content. There is the type of content that people will produce socially for friends. There's promotional content that businesses and celebrities and folks will produce. But there's also a whole class of premium content that the creators need to get paid a good amount in order to support the creation of that content, and we need to be able to support that with a business model, which we're working on through ads to fund that. So the biggest change that I think that we're going to see on the consumption in News Feed and in the tab over the next year or two is going to be much more video inventory and content coming in as we work through and make that business model start to really click for a lot of folks.

Over the longer term, I think as that works, people will experiment with longer forms of video as well and all kinds of different things. But that, I think, is the primary focus for the foreseeable future.

**<A - David M. Wehner>**: Yeah. And Doug, I think you asked about platforms. I mean we've always been focused on a variety of – getting our services on a variety of platforms, but main focus is obviously on mobile.

**<Q - Brian Nowak>**: I have two. The first one Mark is on Instagram, the 400mm daily active users. Curious to be [ph] – hear (24:39) how you think about the core use of Instagram now and how it differs from core Facebook. And how do you think about that evolving over time and the monetization of Instagram evolving over time? And then the second one, just to go back to Doug's question on the content, I know Dave, you mentioned content spend as being part of the investment. Should we think about the content investment as being more driven on rev share or do you see yourselves going out and writing and doing licensing deals? Thanks so much.

**<A - David M. Wehner>**: I can start on that latter question. Our goal really is to kick-start an ecosystem of partner content in the video tab, for example, and our model is really oriented towards revenue share with creators. We are funding some feed content to get the ecosystem going, but the focus is on rev share. And then I think your question was on how the core use case between Facebook and Instagram differs.

**<A - Mark Elliot Zuckerberg>**: Yeah, I can take that one. There are a number of differences. I think a lot of this comes down to the graphs in the community that you have in the different places. Instagram is a follow model, right, so it's – they're not all bidirectional friendships. A larger portion of the content is public content. More of the content is visual, right. Facebook has a mix of text and news and links and visual content like photos and videos. And Instagram creates a pure experience that's focused on photos and videos. So all those good and subtle decisions that Kevin has made over the years add up to creating a different kind of community that what we're finding and that's great, is that it's really complementary to what people are doing on Facebook.

And some of what we found is that as we encourage people to use both Facebook and Instagram, engagement on both can increase. So that is great. And that I think speaks to how you can build these different kinds of communities with different connections in a way that really is creating new value in people's lives.

**<Q - Eric J. Sheridan>**: Maybe two, sticking on the same theme as what Doug and Brian just talked about. Sheryl, for you; would love to get a sense of how you think about some of the opportunities and challenges sitting ahead of the business now on monetizing all of the video that's being consumed on Facebook. And then maybe, Dave, for you. When we think about the P&L impacts of both monetizing video and investing in video, is there anything we should be thinking about or you want to call out in terms of gross vs. net on either the revenue side or the revenue share side that could be leading to mix shift to incremental revenue growth but possibly lower margin revenue coming into the business? Thanks so much.

**<A - Sheryl K. Sandberg>**: On the video ad opportunity, we're seeing consumer video exploding on our platform, as Mark has talked about, and that really creates the opportunity for video ads in the feed. And a lot of this happens within the current News Feed product. People post videos. People consume News Feed stories. Those stories include video stories from consumers, and then we have an opportunity to serve ads.

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As consumer video has grown in News Feed, it's given us that opportunity for video ads because the format of the ads fits the format of what consumers are doing. And we're seeing a lot of great examples of people using ads in the feed across Instagram and News Feed.

In terms of monetizing some of our newer attempts at products in News Feed such as Ad Break, those are really in early experimental stages, and for now, we're really focused primarily on our core business, our core ad products, of which video is one.

One of the things that's really important in this is helping marketers understand that they need to optimize those video ads. An ad that works really well 30 seconds in other platforms and more traditional platforms can work on ours, but the ones that are optimized and use our targeting really perform better. And we're working hard with advertisers to help them see that.

So to share one example, Motorola working with Ogilvy and [ph] Moto Mento (28:55) launched the Moto Z phone, and they did awareness boosting before they launched, targeting Android users and Verizon subscribers. And they optimized their video for the Facebook and Instagram mobile feeds. And then after they launched, they did purchasing ads and re-targeted people who had viewed those initial ads.

That's just a great example of someone using video ads, optimizing a format, but also using the pretty unique targeting we can offer to drive sales. They measured that they had over a 3.5% lift in sales driven by the Facebook and Instagram video ads. And so we're pretty excited about the opportunity we have in our current business, and we're going to work client by client to get the video format of those ads right, get the targeting to be as good and as deep as it can be and make sure we're measuring all the way through to sales.

**<A - David M. Wehner>**: And Eric, you were asking about content and where that's going to get picked up in the P&L. There's no real simple answer in that. I would say in general where we're going to be, rev sharing with creators, that's going to be picked up in cost of revenue. So that's probably the simplest answer.

But as we do arrangements to get the ecosystem going, some of that could get picked up in sales and marketing, and then we have content as well that's getting picked up in R&D for the efforts we're making with Oculus. So you're seeing some of those get spread across several different lines in the P&L, so it's not going to be a clean one spot where you're going to find it.

**<Q - John Blackledge>**: Just a couple of questions. With the strategic shift to video, how do you view the state of the digital/mobile video measurement? Any callout on improvements being done industry wide and within Facebook? And then just on video search, could you just comment on improvements in video search capabilities for users? Thank you.

**<A - David M. Wehner>**: Sheryl, do you want to take the question on video measurement and...

**<A - Sheryl K. Sandberg>**: Yeah.

**<A - David M. Wehner>**: ...how that's evolving?

**<A - Sheryl K. Sandberg>**: Yeah. So new platforms demand new measurement, and so people are measuring all kinds of different things from viewability to how many people see the ad to how long they run the ad. We're focused on all of these metrics and working hard with third parties and with our advertiser to get those metrics right.

We really believe that at the end of the day what matters the most is all the way through to sales. What matters the most is the A/B test that these people saw ads on Facebook and Instagram, these people didn't, and here's the sales lift. And all of the other metrics, although important and we're working hard, are proxy metrics, and those metrics are going through a platform shift that we need to work on.

**<A - David M. Wehner>**: And then, Mark.

**<A - Mark Elliot Zuckerberg>**: And for video search – search is a big priority and a thing that we're working on across all of the different verticals, not just video but also all the posts on Facebook, all of the content that people are selling in Marketplace, the groups that people are joining and sharing and all the news content. And it's an area that

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we've been working on for a while. It's growing steadily and doing well, and we hope to have more updates on that soon.

**<Q - Mark A. May>**: I think the first one might be directed at Sheryl. Your reported pricing metric, I realize there's typically been noise in that. I think it's up 3% year-on-year. First of all, is that sort of representative for general pricing changes in the Marketplace? And do you think that there's still room for upside in pricing? And if so, where are some of the key areas where you see that coming from?

And then another question on video. As you've begun to push more video content to users within the Facebook app itself, are you witnessing any meaningful changes in engagement, time spent with a typical Facebook app user? Thank you.

**<A - David M. Wehner>**: Mark, it's Dave. I can take those on the metrics. From the price-volume perspective, yeah, the price per ad increased modestly 3%. There's lots of different underlying metrics, but the overall kind of reported metric is really – continues to be driven by the mix shift away from right-hand column ads, which are lower price and lower value. And then, obviously impression growth is driven by the users' time spent in ad load.

In terms of the opportunities for price, it's really just continuing to focus on making our ads better targeted, more relevant, improving all the different ways in which we can drive better outcomes for our advertisers and sort of meeting them with the results that they care about and delivering those results. We think there's – continue to be great opportunities to do that, and how the supply-demand dynamics play out will kind of impact the overall direction of price. And it's going to depend obviously also on regional mixes too, because some regions have obviously lower prices.

I think the other question was on video. Video is one of the big drivers of engagement growth on Facebook. It's also helpful on Instagram where we're also seeing the benefit of ranking changes. So we continue to see good engagement and time spent growth across the Facebook family and on just Facebook, and video is a part of that story. So it's an important part of that story.

**<Q - Justin Post>**: A couple things. First, we had a lot of political activity obviously in Q4. Did that contribute anything abnormally to revenues or users? Second question, and I know you'll be getting a lot of this over the next two or three months, but just any difference on trends – Millennials on the platform vs. other cohorts or groups? Just thinking about how those are trending vs. the other groups. And then finally, I think we've seen some ads on Messenger being tested in certain regions of the world. Any commentary on that would be helpful. Thank you.

**<A - Sheryl K. Sandberg>**: Yeah. I'll take a few of those. So on elections, we run a very large and diversified business. So there are these events that are obviously big like the U.S. elections, the World Cup, Super Bowl, but there are enough of these all around the world that no one event is that big for our business. Even last quarter, political spending even within the U.S. alone was not a top-10 vertical for us.

When you think about ads in Messenger, we right now are really focused on consumer growth and engagement because we know that over time that creates the monetization opportunity. We're seeing a lot of organic connections between businesses and consumers. We're now per month at a billion messages sent between people and businesses, and we think that's very promising for our ability for people to use this platform to make those connections that will ultimately drive business opportunities.

We're in the very early stages, some of those ads you're seeing of exploring how to build more of these connections. But right now, we're going to remain focused on user experience and the experimentation we're doing.

**<A - David M. Wehner>**: Yeah. And Justin, just adding to the question on elections, I'd also point out that our reported daily active and monthly active numbers reflect usage in December. So even for the U.S. that doesn't really pick up the election period just because of the way that we tabulate those results.

On Millennials, we were really pleased – this was a fantastic quarter for overall growth of the Facebook community, our strongest absolute MAU and DAU additions y-over-y since being a public company, so really pleased with that. So within that context, we're not breaking out specific cohorts, but we remain a great place for advertisers to reach



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Millennials. And Instagram is obviously another great place to reach Millennials, and we continue to build our products to serve a wide variety of audiences, including Millennials as well.

**<Q - Mark Mahaney>**: David, I think you just talked about these pretty material increases in MAUs. Could I ask two questions? The Asia area MAU growth in particular – I think it was something like 44mm sequentially, that's the biggest that I think you've ever had. So could you just talk about was there some particular markets in particular region there that added to it? And then talking Asia, could you just comment, Mark, on China and how you think about it at long-term as a market opportunity and your level of optimism that Facebook can have a material presence in that market in 5 to 10 years? Thank you.

**<A - Mark Elliot Zuckerberg>**: Sure. So, Mark, Asia benefits probably more than any other region around the sort of three factors that I called out in my prepared remarks. And those are Internet.org efforts, Android product improvements that we've continued to make a big area like Android – Facebook Lite platform on Android has been a great grower for us. But then particularly in Q4, one of the callouts that we've seen, an increase in third-party promotional free data plans in places like India. So that clearly is having an impact in APAC and India was our strongest growth market. So that would be something that I would say is a little bit more unique this past quarter.

**<Q - Mark Mahaney>**: [ph] My (39:08) China question.

**<A - David M. Wehner>**: Yeah. Sorry. Mark's going to take China [ph] second (39:12).

**<A - Mark Elliot Zuckerberg>**: Sure. So as I've said a number of times before, our mission is to connect everyone in the world, and it's hard to do that over the long term if we don't find a way to serve more than a billion people who live in China. So that's certainly a thing that we're going to look out at over the long term. In the specific time horizon that you mentioned, I think it's really hard to predict how this will play out or what we will end up doing. But one of the big things that we need to think about here is, of course, we're only going to do this in a way that we're comfortable with over the long term. So this is something that we're going to continue engaging in and thinking about, how to move forward on, and long-term it's very important. But no news at all in the near-term.

**<Q - Heather Bellini>**: I had two. I was just wondering, Mark, you mentioned similar to how you referenced Facebook and Instagram being complementary, how do you think about WhatsApp and Messenger? And I'm wondering if there's different paths to monetization over time for each of these?

And then my second question, I guess, might be for any of you. Just you, Dave, have mentioned expectations for slower growth in ad load on core Facebook in H2 this year. How should we think about the potential for ad load growth on Instagram? Thank you.

**<A - Mark Elliot Zuckerberg>**: I'll take Messenger and WhatsApp and you can take ad load. So yes is the basic answer that Messenger and WhatsApp serve somewhat different utilities for people. WhatsApp really takes the place of SMS in a lot of the markets where it operates. The graph is based on phone numbers. You're as likely to text your barber or someone that you're going to transact with, who you would have a phone number with, as you would be a friend. Whereas on Facebook Messenger, the graph is your friends, and you're more likely to, say, wish an acquaintance happy birthday on Facebook Messenger than on WhatsApp or you might not have their phone number in the first place.

So you can think about some overlap in the core use case, you might message your close friends and family on either. But what we found in general is that if you look at some of the markets that are strongest for both of them, they can each grow in those markets, and as messaging has become more affordable and more reliable for people, the volumes of messaging have just gone through the roof in terms of what people want to do.

My understanding from looking at a bunch of analytics is that the peak of global SMS reached somewhere in the low 20B messages per day, and we already have many times more than that. Three times or more, more than that across WhatsApp and Messenger. And, of course, there are other messaging products in the world besides these as well. So we're pretty confident that this is going to keep on growing.

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I do think to your point that the monetization paths are going to be somewhat different, reflecting the differences in product philosophy. So Messenger is much more focused on being an expressive and rich environment that has lots of different types of content. Kind of more like Facebook to the Instagram example that we used before, whereas WhatsApp I think is a much more utilitarian experience with a much more stark UI where there's just not as much emphasis on having a lot of different ways to engage.

So we did the experiment that you asked about before around ads and Messenger and different ways that businesses can interact and there's a lot of flexibility around how we can explore there, which is why I think you'll see more of that on the Messenger side than on the WhatsApp side in the near term. But giving businesses the opportunity to connect in WhatsApp and reach the people that they want and eventually have increasingly, hopefully, transactional interactions I think will be a really useful thing on that platform as well.

**<A - David M. Wehner>**: Heather, it's Dave. Just on Instagram vs. Facebook and ad load, clearly the biggest driver of our business is core Facebook just in terms of sheer size and even sheer contribution to growth. Instagram is growing quicker on a percentage basis, but it's much smaller. The ad load opportunities are higher on Instagram because Instagram is at a lower ad load than Facebook, so there is an opportunity for us to continue to grow ad load on Instagram probably beyond – in a longer timeframe than there is on Facebook because of that disparity in terms of where they are today. But given the scale of Facebook and the importance of driving overall revenue, that's why I continue to express what our expectations are for advertising growth in 2017 and the reduction in the growth rate that we expect, given the potential to grow ad load on Facebook that we expect to come down in 2017.

**<Q - Peter C. Stabler>**: Two for Sheryl, if I could. First of all, Sheryl, when it comes to measurement, I'm curious if you could comment on what appear to be the really successful efforts you've had in linking on Facebook ad exposure to both offline and online sales of your customers. And, I guess, when we think across maybe your 1,000 largest clients, any chance you could give us a sense of what percentage are utilizing this level of kind of advanced measurement in terms of measuring actual sales lift and share gains?

And then, secondly, just wondering if there's any color around the pretty recent rollout of buy buttons on Instagram? Thank you very much.

**<A - Sheryl K. Sandberg>**: Yeah. So when you think on measurement, your question gets to the heart of the matter, which is, there's a lot of conversations on what we measure. And when you see platform shifts, as you are in the ad market, from more traditional forms of media to display, to now mobile, we're seeing those metrics change, and there's obviously a lot of conversation and a lot of concern out there about what we're measuring. We think the answer to all of this is to remember that what really matters is going all the way through from the ad itself to the sale, whether that sale is online or offline. And we are working hard to work on the data in a privacy protected way to be able to do that. And we're making progress across verticals, across our large customers.

I don't have the percentage of exactly how many customers are working on this type of measurement with us. It's certainly growing. It's certainly something we're working on vertical-by-vertical. But it has really important impacts, not just in their ability to serve the right ads to the right person at the right time, but also their ability to optimize their ads for our format. That once they understand what's really moving their product off shelves, online and off, that's where we get to the real work we need to do to optimize the ad and really work on the targeting. And so I remain very optimistic. We have a lot of hard work to do to get to all of our ad campaigns having that kind of measurement. That's going to take a long time. But the more we can do it, even in studies with each client, the better our ads get.

**<A - Sheryl K. Sandberg>**: Oh, buy button. Yeah, sorry. Just to address the buy button. The core of our business is really connecting people with what they care about. And so we're looking at getting the right message the right time. We've worked hard on products ads that get to products. So you've seen us work on dynamic ads, carousel ads, estimated store visits. Things that help our ad business sell products. You are seeing us take other steps like a buy button, like the Marketplace launch, which are really aimed at improving some of the experiences we think people are trying to have and already having in organic ways on Facebook. But the core of our focus is still very much focused on ads and how we can do ads at the product level.



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**<Q - Kenneth Sena>**: Thanks. Just on the OpEx for 2017, you mentioned R&D, content, sales, marketing. As we think about R&D and also the talent shortages that are in data science and engineering, not to mention the potentially getting worse around immigration, et cetera, how should we think about that potentially factoring in as we look out through 2017 and maybe a little bit further out? Thank you.

**<A - David M. Wehner>**: Sure, Ken. I mean, we obviously are focused on hiring top engineering talent. It's key to our 2017 goals and executing on our three, five, and 10-year roadmap, the one that Mark outlined. One thing that we're optimistic about is our ability to hire technical talent outside of the Bay Area as well as in the Bay Area. And that's because we've built up engineering locations in key areas like Seattle, London, New York, Boston, Tel Aviv. So we've got other markets in which we can recruit and grow engineering and other technical team. And that's really different from where we were a couple years ago. So that's an important part of the infrastructure that we've put in place in the last two years that we're pleased with.

**<Q - Brian P. Fitzgerald>**: Mark, on AI maybe. You mentioned improved recommendations and we've interacted with chatbots on Messenger. Maybe curious overall how you see artificial intelligence and machine learning processes impacting your business over time?

**<A - Mark Elliot Zuckerberg>**: Well, I think AI is going to be great for the experience that people have in our community. So there are a few types of systems here that we're working on around understanding content. One is around visual content and the other is about language. So, for visual content, we want to be able to look at a photo and understand what's in it, right, and whether that's something that you're going to be interested in, right? And similarly, we want to be able look at a video and watch it and understand whether that's something that you're going to be interested in.

And you can imagine that today, we consider putting things in your News Feed that you're connected to in some way, right, that are from a friend or a page that you're following or that one of your friends likes. But there's no reason that we shouldn't be able to match you up with any of the millions of pieces of content that you might be interested in that gets shared on Facebook every day, except for the fact that we don't have the AI technology to know what those are about and if they match your interest today. So, a combination of being able to understand the text that people message, read the articles that people would want to look at, watch the videos, look at the photos, are going to be great, too.

Another area where I'm really excited about this is our ability to keep the community safe, right? So there's an increasing focus on objectionable content, right, and a lot of unfortunate things, right, that people share on Facebook. And it's a minority of the content, but I'm really focused on making sure that our company gets faster at taking the bad stuff down. And we can do better with people, but ultimately the best thing that we can do is build AI systems that can watch a video and understand that it's going to be problematic and violate the policies of our community and that people aren't going to want to see it and then just not show it to people before bad experiences happen and things like violence gets spread through – violent content gets spread through the network.

So I think it's both going to be – AI is both going to be great on showing people content that's really good and helping us enforce the community standards that we have to make sure that everyone has a good and fair experience.

**<Q - Scott Devitt>**: I have two questions for Mark. Wondering, Mark, if you could talk a bit more about the new video tab, just early engagement trends, user feedback, and really just how the product works in terms of categorization of content, user preference targeting, and maybe how the content flows into the tab vs. being in the News Feed and, to the extent, that there's duplication there.

And then separately, VR and AR continues to be in the 10-year vision for the business. Mark, I was wondering if you could provide some detail on what you think the friction points are that are keeping that from being on a more accelerated commercialization path. Thank you.

**<A - Mark Elliot Zuckerberg>**: So I'll take video first and then I can talk about VR as well. So, for the video tab, the goal that we have for the product experience is to make it so that when people want to watch videos or they want to keep up to date on what's going on with their favorite show or what's going on with the public figure that they want to follow, that they can come to Facebook and go to a place knowing that that's going to show them all the content that

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they're interested in.

So that's a pretty different intent than how people come to Facebook today. Today, for the most part, people pull Facebook out when they have a few minutes, when they want to catch up and see what's going on in the world with their friends and in the news and everything that's going on. That's very different from saying, hey, I want to watch video content now. And that's what I think we're going to unlock with this tab.

So, all of the content that is on Facebook is eligible to go in the tab. I mean, we're showing video content, not all the rest of it, but there isn't a concrete difference between what can be a News Feed and what can be here. It's just that the experience is designed to deliver on that promise of, you want to watch videos, you want to keep up with the content that you watch episodically week-over-week, this is going to the place where you go to do that.

I do think that it's going to get a lot stronger once the business model really starts to click here, right? Because a lot of the best episodic content is professionally created, and those folks need to make a good amount of money in order to support their business model. So having mid-roll ads, we're committed to doing this in a way that's very good on the user experience, but that is going to enable the kind of content that I think is going to take us to the next level.

The early trends are good, but I think this is really going to be an area that is proportional to the amount of quality content that is in the system, and the business model is really going to be the thing that enables that.

All right. Sorry. I forgot about that for a second. All right. So VR and AR, what can accelerate that? I think that there are parts of this that are on a good trajectory and parts where we're a little behind where we would want to be.

I think Samsung shipping 5mm Gear VRs. I mean, that's their product, not ours, but we build technology that powers it. I think that's quite a good result, right, and one that we're very happy with, and just shows how strong of a company Samsung is at being able to build these products and sell them through into the world.

On the side of the products that we built, Rift and Touch were both a little delayed, so that was obviously somewhat of a disappointment. And if you want to accelerate development, obviously, we need to get our products in the market at a good pace. But in terms of the content development, I actually think that that's coming at a reasonable clip.

Early on, there is this issue, which is that if you're a AAA game developer, until there's a certain volume of units in the field, you're not going to be able to make enough money to fund your game development just based off of people buying your content. So that's why we're investing so much capital in content to feed the ecosystem and solve this chicken and egg problem if you need the content in order to create the ecosystem. But I don't think that there is really a strategy to pull this in from 10 years to five, I just think it's going to be a 10-year thing.

The analogy that I always use is the first smartphones came out in 2003, right, the BlackBerry and Palm Treo, and it took 10 years to get to 1B units. And, I mean, I don't know if there was something that folks could have done to make that happen fast, but I think that was pretty good. And, I mean, if we can be on a similar trajectory of anywhere near 10 years for VR and AR, then I would feel very good about that, and I feel like we're making the right bets now to plant the seeds for that. But I would ask for the patience of the investor community in doing that because we're going to invest a lot in this, and it's not going to return or be really profitable for us for quite a while.

**<Q - Anthony DiClemente, CFA>**: A couple for Mark. Mark, just on the theme of video, given the strong cash position that Facebook has, the cash on the balance sheet, the FCF generation of the company, are there any possible acquisitions out there that you think would or could supercharge your growth in the video space, in the original content space, given this evolution?

And maybe along those lines, what do you think about live sports in terms of the video use case? Is that working on Facebook? You've experimented with NBA games on Facebook outside the U.S., NBA D-League on Facebook, so just wanted to get your thoughts on how those have gone. Thanks a lot.

**<A - David M. Wehner>**: So, Anthony, I can just take the first part of that at least, which is – look, our focus is on kick-starting the ecosystem here for the video tab that Mark talked about. We're looking at a wide range of content, and we're really working towards a revenue share model with creators. We're certainly going to be seeding content to get

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the ecosystem going, but that's not about doing big deals. So we're certainly looking at a variety of different types of content to look at.

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