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Illumina, Inc. (ILMN) CEO Francis deSouza on Q3 2019 Results - Earnings Call Transcript

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Q3: 10-24-19 Earnings Summary

Press Release *Slides*

EPS of $1.93 beats by $0.52 | Revenue of $907M (6.33% Y/Y) beats by $33.81M

Earning Call Audio

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Illumina, Inc. (NASDAQ:ILMN) Q3 2019 Earnings Conference Call October 24, 2019 5:00 PM ET

Company Participants

Jacquie Ross - Investor Relations

Francis deSouza - President and Chief Executive Officer

Sam Samad - Chief Financial Officer

Conference Call Participants

Tycho Peterson - JPMorgan

Puneet Souda - SVB Leerink

Doug Schenkel - Cowen and Company

Dan Brennan - UBS

Derik De Bruin - Bank of America

Steve Beuchaw - Wolfe Research

Jack Meehan - Barclays

Sung Ji Nam - BTIG

Bill Quirk - Piper Jaffray

Vijaykumar - Evercore ISI

Mark Massaro - Canaccord Genuity

Operator

Good day, ladies and gentlemen, and welcome to the Third Quarter 2019 Illumina Earnings Conference. At this time, all participants are in a listen-only mode. After the speakers' presentation, there will be a question and answer session. [Operator Instructions] As a reminder this conference call maybe recorded.

I would now like to introduce your host for today's conference, Ms. Jacquie Ross, Illumina Investor Relations.

Jacquie Ross

Good afternoon everyone and welcome to our earnings call for the third quarter of fiscal year 2019. During the call today, we will review the financial results released after the close of the market and offer commentary on our commercial activity, after which we will host a question-and-answer session. If you have not had a chance to review the earnings release, it can be found in the Investor Relations section of our website at illumina.com.

Participating for Illumina today will be Francis deSouza, President and Chief Executive Officer and Sam Samad, Chief Financial Officer. Francis, will provide a brief update on the state of our business and Sam will review our financial results.

This call is being recorded and the audio portion will be archived in the Investors section of our website. It is our intent that all forward-looking statements regarding our financial results and commercial activity made during today's call will be protected under the Private Securities Litigation Reform Act of 1995. Forward-looking statements are subject to risks and uncertainties, actual events or results may differ materially from those projected or discussed. All forward-looking statements are based upon current available information and Illumina assumes no obligation to update these statements.

To better understand the risks and uncertainties that could cause actual results to differ, we refer you to the documents that Illumina files with the Securities and Exchange Commission, including Illumina's most recent forms 10-Q and 10-K.

With that, I will now turn the call over to Francis.

Francis deSouza

Thank you, Jackie, and good afternoon, everyone.

Illumina reported a solid third quarter with revenue up $907 million driven by 12% growth in our Sequencing business, more than offsetting a 24% decline in arrays revenue. Total revenue included more than $30 million associated with IVD licensing agreement which was previously anticipated in the fourth quarter. Sequencing systems and sequencing consumable revenue was largely in line with expectation.

Sequencing consumable revenue of $525 million grew 11% compared to the third quarter of 2018. Exceeding $0.5 billion for the first time in the company’s history. Year-over-year dollar growth of $53 million reflected consumable growth for every system in our sequencing family excluding HiSeq. High-Throughput sequencing consumable shipments were almost $300 million for the third quarter, of which just under $200 million was NovaSeq.

NovaSeq consumables grew slightly more than 20% sequentially in the third quarter highlighting both the ongoing conversion from HiSeq and the expansion of sequencing volume. During the quarter, NovaSeq surpassed HiSeq x to become the platform

generating the most sequencing data. NovaSeq pull-through per system was once again over $1 million on an annualized basis and at the highest level we've seen so far this year.

Moving to mid and low-throughput consumables, there are couple of trends worth noting. First, we are seeing strong uptick in NextSeq Dx. Our SBA regulated and CE IVD mark version of NextSeq. Shipments of NextSeq Dx have represented just over 20% of our NextSeq shipments so far this year, compared to approximately 10% in 2018. We are also seeing a number of our larger MySeq customers transition to NextSeq DX, notably driven by growing breadth and volume of clinical applications including oncology.

Finally, we continue to see a handful of our larger NextSeq customers transitioning some or all of their sequencing volume to NovaSeq highlighting the broadening accessibility of high intensity sequencing applications. These trends, the increasing NextSeq DX, uptake and customers transitioning to larger platforms are positive indicators for future growth but result in lower pull-through on MySeq and NextSeq in the near-term.

Over time, we anticipate that these customers will grow total consumable spend with higher sample volumes, larger content size, and greater depth of sequencing.

Finally, library prep contributed to sequencing consumables growth with a 13% increase compared to the third quarter of 2018 driven by the strength of our Nextera Flex Solutions, as well as adoption of our TruSight Oncology 500 kit. Library Prep continues to represent just under 15% of our total sequencing consumable revenue.

Moving to sequencing systems, revenue of $142 million was up 10% sequentially and up slightly from the same quarter a year ago. As we expected this was the strongest quarter of the year so far and in fact represented the second highest shipment quarter ever for both NovaSeq and NextSeq. NextSeq ASPs remains quite consistent, while NovaSeq ASP was at the lower end of the historical range due to the multi-unit shipments associated with the UK Biobank.

NovaSeq orders included 35% to HiSeq customers taking their first NovaSeq bringing the total number of HiSeq customers who have at least started their conversions to roughly a third. It's clear that there is still plenty of opportunity for NovaSeq as we move into its fourth year of launch in 2020.

We continue to see strong adoption among new to Illumina or new to High-Throughput with close to a quarter of NovaSeq shipments going to these customers in the third quarter.

Moving to NextSeq, 2019 has been a very strong year for NextSeq system shipments. In fact, our strongest year-to-date shipment performance ever impart driven by the increasing momentum from NextSeq DX, we expect the NextSeq portfolio to have its strongest shipment year-to-date.

Within our Low-Throughput system family, MiSeq, MiniSeq and iSeq shipments were up sequentially impart driven by growth in EMEA. Once again, we see strength in the DX version with year-to-date MiSeq DX shipments already exceeding full year 2018.

Overall, we are very pleased with the expansion of our installed base particularly for NovaSeq and NextSeq that reflects growing demand for sequencing and it's a promising leading indicator for growth in our consumable business. Sequencing services and other revenue of $138 million was up 27% from the same quarter a year ago and up 35% on a sequential basis with higher IVD licensing and development revenue, more than offsetting the decline in sequencing services associated with the completion of the Gel program in the UK.

IVD licensing and oncology development contributed to revenue growth in the third quarter. In combination with our TruSight oncology program, we see a clear opportunity to accelerate clinical adoption of NGS-based IVD tests through select partners including QIAGEN and Adaptive. Through these partnerships, we expect to see multiplier effects in our patient reach and access efforts and you can expect Illumina to further collaborate with others to leverage our technology for clinical testing ultimately improving patient outcomes.

In the mean time, I am pleased to share that TSO 500, our 523 gene oncology panel currently available as RUO continues to progress towards US IVD. Last month, we submitted the first pre-market approval module to the FDA and remained committed to accelerating the adoption of comprehensive genomic profiling and moving NGS tests into standard-of-care over time.

Arrays continue to be a headwind for Illumina in the third quarter, both sequentially and year-over-year, primarily due to DTC. Total microarray revenue of a $102 million was down 24% from the third quarter of 2018 reflecting lower revenue across systems, consumables and service and other.

We are starting to see the extension of Consumer Genomics into sequencing-based offerings. Ancestry for example, announced last week a new product called AncestryHealth Plus that leverages NGS technology to deliver more comprehensive data on an expanded set of health conditions. While we do not expect DTC to return to growth in the near-term, we do believe that individuals will be engaging more directly with their genomic information through services like this in the future and we remain optimistic in the opportunity for consumer genomics over time.

Before I hand the call over to Sam, I'd like to take a few moments to share some organizational updates. First, I'd like to welcome Joydeep Goswami, who joined Illumina last month as our Senior Vice President of Corporate Development and Strategic Planning. Joydeep has over two decades of global experience across biopharma, diagnostics and research tools including senior leadership roles developing strategies, and leading new product developments, partnerships, licensing and M&A. We are thrilled to have him join our leadership team.

And I'd also like to share that Jay Flatley will be transitioning from Illumina's Executive Chairman to Chairman as of January 1st. Jay has served Illumina as Executive Chair since he stepped down as CEO in July of 2016. We thank him for his tenure as Executive Chairman and look forward to his continuing contribution as Chairman.

With that, I'll hand the call over to Sam for a review of our quarterly financials. Sam?

Sam Samad

Thanks Francis. As discussed, third quarter revenue grew 6% year-over-year to $907 million driven by 12% growth in sequencing partially offset by a 24% decline in microarrays. Geographically, the Americas revenue grew 8% versus the same quarter last

year and approximately 30 million headwind in arrays was offset by growth across the sequencing business with particular strength associated with growing clinical oncology sequencing volumes.

EMEA growth of 7% was impart driven by large-scale initiatives. Specifically, the initial infrastructure investments from the UK Biobank, as part of their effort to sequence 450,000 genomes. Once again, the region saw a healthy contribution from emerging markets with a handful of NovaSeqs placed into these countries, both for clinical and research use.

Greater China was down 7% year-over-year, but allowing for the net $6 million in tariff stocking activity from the third quarter of 2018, revenue was down 1%. The region delivered strong clinical sequencing consumable growth driven by reproductive health and oncology, but this was offset by lower revenue from research customers.

Finally APJ revenue of $63 million was up 9% from the third quarter of 2018, another growth quarter for the region impart driven by Japan with growth in both clinical and research.

Moving to product revenue, sequencing consumables grew 11% from the same quarter a year ago to $525 million or 13% allowing for the tariff stocking activity in the third quarter of 2018. As Francis noted, Low and Mid-Throughput consumables were impacted by some transitional factors that resulted in NextSeq pull-through at the low-end of our $130,000 to $160,000 range and MiSeq pull-through below the low-end of the $40,000 to $45,000 range.

Array consumables were down 10% from the same quarter a year ago reflecting lower DTC demand. Array service and other revenue of $23 million was down 32% from the same quarter a year ago, also reflecting lower DTC volumes. Sequencing service and other revenue of $138 million was up 27% year-over-year. As a reminder, this category includes warranty and field services, licensing fees including NICT test fees, lab service revenue and revenues associated with licensing and development agreements.

Typically, the largest contributor in this category is warranty and field services, which historically represented between 50% and 60% of revenues, but was below 50% this quarter. The second largest contributor this quarter was revenue of more than $30 million that included the IVD licensing agreement with QIAGEN.

Oncology development revenue was also up both sequentially and year-over-year. Sequencing service and other growth was partially offset by lower Gel sequencing volumes compared to a year ago.

Moving to systems, sequencing system revenue of $142 million, grew 3% from the third quarter of 2018, as a result of higher NovaSeq shipments. Arrays system revenue was $4 million more in line with a typical quarter, but down significantly from the third quarter of 2018 when we saw a record array system shipments associated with DTC. Combined, instrument revenue represented 16% of total revenue in the quarter.

Before I continue, I will highlight non-GAAP results that includes stock-based compensation. I encourage you to review the GAAP reconciliation of these non-GAAP measures, which can be found in today's release and the supplementary data available on our website. Please note that all subsequent references to net income and earnings per share refer to the results attributable to Illumina's shareholders.

Non-GAAP gross margin of 72.5% was up 300 basis points sequentially and approximately 140 basis points year-over-year driven by favorable mix. Notably, the IVD licensing and oncology development revenue reported in sequencing service and other with year-over-year growth partially offset by lower instrument and consumable ASPs.

Non-GAAP operating expenses of $330 million were down $30 million from last quarter and were lower than expected due to delayed hiring, program reprioritization and project spend that shifted from the third quarter to the fourth quarter. Non-GAAP operating margin was therefore 36.1%, up from 26.6% last quarter.

Non-GAAP tax rate of 15.8% was lower than expected due to prior year return adjustments and discrete tax benefits related to the release of tax reserves. For the third quarter of 2019, non-GAAP net income was $286 million or $1.93 per diluted share and GAAP net income was $234 million or $1.58 per diluted share with the primary difference

being unrealized losses from marketable equity securities. Cash flow from operations was $267 million. DSO of 54 days, increased from 51 days last quarter as a result of revenue linearity in the third quarter.

In terms of other items impacting cash, we repurchased $199 million of common stock in the third quarter, leaving approximately $289 million available under the current plan at the end of the third quarter and capital expenditures were $49 million in the quarter. We therefore ended the third quarter with approximately $3.2 billion in cash, cash equivalents and short-term investments.

Moving to guidance we expect fourth quarter revenue to grow about 8% from the fourth quarter of 2018. We expect sequencing consumables to grow in the high-teens from the same quarter a year ago. We expect non-GAAP gross margin to be approximately 250 basis points lower on a sequential basis, reflecting revenue mix and non-GAAP operating expenses to increase approximately 450 basis points as a percent of revenue compared to last quarter reflecting a return to more typical rates as we catch-up with delayed projects and expenses from the third quarter.

We expect other income to be down sequentially due to lower interest rates on our cash equivalents in the fourth quarter and our tax rate to be roughly flat compared to the 15.8% reported in the third quarter.

For the full year, we continue to expect 2019 revenue growth of approximately 6%. We continue to expect our sequencing business to grow approximately 10% year-over-year albeit with some shift in revenue mix, primarily between sequencing consumables and sequencing service and other. We continue to expect NovaSeq shipments to be flat to slightly up from 2018.

Finally, we now expect arrays to be down approximately 15% from 2018, which compares to our prior expectation of down 14%.

Moving to the rest of the 2019 P&L, we expect non-GAAP gross margin to be slightly up compared to the 70.1% reported in 2018.

We expect full-year non-GAAP operating expenses as a percentage of revenue to improve approximately 150 basis points versus the 42.2% reported in 2018 reflecting OpEx and headcount prioritization activities. And we expect weighted average diluted share count to be approximately flat compared to 2018. This includes the dilutive effect of our 2021 convertible notes.

As a result, non-GAAP full year earnings per share is expected to be between $6.40 and $6.45. GAAP earnings per share is expected to be between $6.55 and $6.60.

With that, I'll hand the call back to Francis.

Francis deSouza

Thanks, Sam. Before we open up the call to questions, I will make a quick comment on the CMA's provisional finding and our proposed acquisition of Pacific Biosciences. While we are still in the process of reviewing the document, we continue to believe that this acquisition is pro-competitive and in the best interest of customers and the genomics industry. We'll continue our discussions with the CMA in the weeks ahead.

Looking to 2020, momentum continues to build with the growing appreciation among clinicians that genomics will be integrated into the standard of care over time. We are seeing a growing pipeline of partnerships for clinical IVDs that will expand the reach of NGS and accelerate the adoption of genomics.

We continue to see favorable developments in reimbursement with almost 75% of all insured lives in the U.S. having some coverage for oncology panels including some for liquid biopsy. Coverage for undiagnosed disease testing continues to grow for both Whole-exome and Whole-genome sequencing. And we continue to see broader adoption of NIPT with seven positive European NIPT reimbursement decisions in 2019 alone including Germany's plan to reimburse NIPT for high-risk pregnancies.

The UK Biobank has started sequencing its 450,000 samples and we expect both all of us and the UK's National Health Service to start scaling in 2020. And advancements in research methodologies such as single-cell and spatial transcriptomics has the potential to provide insights into therapeutic areas such as immunology, oncology and neurology.

Illumina will continue to innovate for our customers and with partners to accelerate the availability of impactful clinical menu that lead to a world where genomics is incorporated into the standard of care and improves outcomes.

I'll now invite the operator to open up the call to questions.

Question-and-Answer Session

Operator

[Operator Instructions] Our first question comes from Tycho Peterson from JPMorgan. Your line is now open. Please go ahead.

Tycho Peterson

Hey, thanks. Francis, can you talk on pacing for UK Biobank and as we think next year all of us. Can you talk about how much you actually captured this quarter from UK Biobank? And what you expect in the fourth quarter? And then, how we should think about POPSEQ next year?

Francis deSouza

Yes, sure, Tycho. So the UK Biobank, as you know, signed the deal in Q3 and started to ramp up both in terms of taking their sequencing systems as well as starting sequencing in Q3. We expect that to be running for the next few quarters as they work through the 450,000 samples. And so, we expect that to be a Q4 revenue driver, as well as a revenue driver for next year.

In terms of All of Us, we expect that to be 2020 revenue driver, not really a 2019 revenue driver. So they are continuing to work through. They got the genomic counseling service signed up. They are working through the IRB and they are in discussions with the FDA and we expect them to start to ramp up in the first part of the next year.

Sam Samad

And I will add, Tycho that, for Q3 specifically, even though we didn't size it, we did have some instruments that we placed with the testing centers that are performing to work for the UK Biobank. Some NovaSeq instruments that were placed in Q3 and some consumables to start doing the work on the samples.

Francis deSouza

Again if I just add one more thing to what Sam said, Tycho, the other national initiative that we expect to ramp up next year is the NHS and so we do expect that to start ramping up at the beginning of next year and we are working with them on the shape of that ramp over the course of the next year and from then on, we expect to play out in the following years.

Tycho Peterson

Okay. And if I could ask one follow-up for Sam on China, you had a $40 million stocking in the comp in think and then you said, $6 million net this quarter. Can you just talk about, was this still customers moving in and out as you alluded to last quarter? Or what are kind of the underlying dynamics in China?

Francis deSouza

Yes, thanks, Tycho. So, with regards to China, we did see a decline this quarter. If you normalize for that, it's roughly flat driven by the stocking that you just mentioned. But essentially what we are seeing in China is, on our clinical side of the business, actually we are seeing very strong growth in clinical. We are seeing strong growth in oncology testing, NIPT testing, genetic disease testing.

Where we see weakness in China is on the research side of the business and we've seen a decline in that part of the business and fundamentally, we believe that's driven by research funding that's declined or down in China driven by some of the macroeconomic concerns there. We actually have some data that says research funding is down 10% year-over-year.

So, that's really the story there. Not as much, I mean, there is some normalization related to stocking in Q3. But really, we are seeing, it's a two-part story with clinical being very strong but research being down.

Operator

Your next question comes from Puneet Souda SVB Leerink. Your line is open. Please go ahead.

Puneet Souda

Yes, hi, Francis. If I could just ask around the desktop units, sort of I think in the last quarter, you gave a sense that wasn't clear. What was driving some of the weakness there? Do you have any more clarity?

It seems like NextSeq DX is continuing to seize growth, but you pointed out couple of comments around the pull-through being on the lower end. Could you elaborate a little bit around what is driving that fundamentally in the market?

Francis deSouza

Yes, Sure, thanks, Puneet. So, last quarter, we talked about the fact that we were seeing lower pull-through on the desktop side of the portfolio and now we've had another quarter of data and we are seeing two trends play out.

One trend we are seeing play out is we are seeing customers migrates and buy bigger systems. So we are seeing at the top end of the MiSeq customer base, some customers are opting to buy NextSeq and at the top end in terms of usage, on the NextSeq customer base, we are seeing some customers move up to NovaSeq.

So, these transitions from their existing platforms to larger platforms are good signs for us but in the near term do put some downward pressure on the pull through as they ramp up utilization on their bigger systems. General customers tend to buy bigger systems, because they have expectations that their usage is going to go up over time.

The second trend that we are seeing play out is as you touched on the NextSeq DX and what we are seeing in actually both the MiSeq portfolio and the NextSeq portfolio is that we are seeing customers start to purchase the NextSeq DX. That's a really good sign in terms of future growth of our clinical business and the – in terms of our overall NextSeq portfolio, the portion of that portfolio that NextSeq has grown from 10% of shipments last year to 20% of shipments this year. So really good growth in the NextSeq DX portfolio.

Again, that's a long-term positive indicator in terms of usage, but has put some downward pressure in the near-term as customers start that transition and validate the DX boxes. So those are the two trends that we are seeing play out in that end of the portfolio.

Puneet Souda

Okay. Thanks. And my follow-up is a bit broader. I am going to go a bit back here in terms of the elasticity of demand that's a central thesis to Illumina. When we look back at 2014, you launched HiSeq X on the market which drove the growth through 2015 and then we saw a little bit of slowdown in 2016. Then you launched in 2017 NovaSeq and that drove strong growth throughout 2017 and 2018.

The elasticity of demand played out very well in these two major periods here. But now as we head into 2020 here, you seem to be suggesting that NovaSeq consumables will continue to drive growth. So I am trying to understand is an potential absence of a new instrument here and I appreciate that's really hard for you to say anything around that, but how should we think about the catalyst to that next elasticity of demand which is key to the growth here and 2020 and beyond?

Francis deSouza

Sure, so, you may have an interesting point about the look back and there is an apparel that I wanted to pick up that you touched on which is, what we saw before is that, when we launch a new instrument, and customers transition and you touched on when we launched DX.

But I'll even go a little bit further than that and talk about when we launched the HiSeq what we saw is that as customers migrate to a bigger instrument, and in the HiSeq case, there was a couple of quarters where we saw the pull-through, drop for a couple of quarters and then pick up again. And that played out again a few years later as you touched on with DX.

And so, when I just talked about the desktop side of the portfolio and customers are migrating up to a bigger instrument, so they were moving to the NextSeq DX for example from MiSeq, that's the exact same phenomenon.

Right, so, what we've learned from our customers is that, when they buy a bigger box, it's an expectation that they have – that they will have more business and that's typically how it plays out. And it doesn't play out in the quarter that they buy a box. In some cases, for example, a couple of quarters in the case of that, the HiSeq.

And so, so that's the elasticity fact we are seeing. Separately, you talked about the drivers of that we expect to see going forward in the business and some of the drivers include things like, as you touched on the population sequencing efforts for example, that are starting to ramp up. So for example, UK Biobank ramped up at the tail end of Q3.

That's going to play out not just in Q4. But all through 2020. We talked about All of Us that's going to start in the beginning of 2020. So really wasn't a factor in 2019 at all, but it's going to play out over 2020. Similarly the NHS, it wasn't a factor at all and in fact this year we were caught in the gap between GeI winding down.

And so, less revenue this year from GeI than we had last year and the NHS not yet ramping up. And that will be a factor next year. And so, those are some of the things that we expect to be incremental next year over this year.

Operator

Your next question comes from Doug Schenkel from Cowen. Please go ahead. Your line is open.

Doug Schenkel

Okay. Good afternoon everybody. So, starting on sequencing consumables, if we take the $14 million bulk order out of the base, it looks like you grew 15% or so year-over-year. So, on the surface, that seems to be a step in the right direction relative to first half performance. However you still came up almost $10 million light of my forecast and that was with a bigger than expected jump in instrument revenue in the quarter.

And while I at least from my standpoint, you are completely clear on it in your prepared remarks, your guidance for sequencing consumable growth in the fourth quarter seems to imply that you are reducing your full year guidance assumption for sequencing consumable revenue. So, first off, is my math right?

Second, what exactly has changed? And why isn't NovaSeq ramping as you expected? What conclusion should we reach on your visibility and ability to forecast overall sequencing revenue growth given I think the expectation has been this is supposed to be more predictable. And then, longer term, if we look at your history, even when we do the two year average growth stacks for the first half, it looks similar to what we've seen in the past for Illumina is at least a 20% sequencing consumable growth company.

Using stacks normalizes for bulk orders. So that's the reason I do at that way. As we look through the second half, when we take your third quarter performance and your fourth quarter guidance, it seems to assume stacks growth is going to moderate to low double-digit levels. Is that the new normal? Or are you looking for more than that, Francis?

And then, I know that's a lot, but one more thing. It seems like the biggest driver – upside in the quarter was the QIAGEN upfront platform access fee payment to you. You indicated that this was already in guidance. That said, QIAGEN talked about GeneReader as a component of their growth strategy at their June 20th Analyst Day.

You last provided guidance on July 29th. It's a little hard to understand how this could go for something that was presented as an independent company's growth driver to something that you included in your guidance 39 days later. So, I just want to make sure, Sam that I am not missing anything. Thank you.

Sam Samad

Yes, so, Doug, thank you for the questions. There is obviously a few parts to it here. So, I'll start and maybe Francis can also comment. So, with regards to Q3, let me start with regard to Q3 and try to clarify in terms of the sequencing consumable growth and what that looks like and then I'll make my way to full year expectations and what that means for sequencing consumables as well.

Although I won't comment necessarily on what's the new normal, but I can give you a sense of to what Q4 looks like for our expectations. So, for Q3, we grew sequencing consumables by 11% and if you normalize for some of the stocking activity, in China from last quarter it was 13% normalized for some of the stocking activity.

So that's the expectation in Q3 and in fact, if we – or that's the actual results in Q3 and if you compare it to our expectations for the quarter, it was actually better than expected. So, normalizing for anything related to the IVD licensing deal revenues, in fact for the quarter, we came in slightly better than expectations because we had lower DTC revenues that were offset by better sequencing consumables revenue for the quarter itself.

Now, if I look at Q4 and the full year, so one thing you are correct on is the fact that, we have taken guidance down slightly for - modestly sequencing consumables for the year. So, initially we were in the mid-teens in terms of sequencing consumable expectation growth and now we are expecting sequencing consumable growth for the full year to be in the low-teens.

And that reduction is mostly driven by the drivers that Francis commented on earlier with regards to pull-through on some of the non-High-Throughput instruments. So the lower pull-through that we are seeing with regards to NextSeq and with regards to MiSeq that drives most of the lower guidance that we are expecting for the full year.

And finally with regards to Q4, we are now expecting Q4 to be in the high-teens in terms of sequencing consumable growth. So, we do get back in Q4 to our highest growth quarter in the year in terms of sequencing consumables. Albeit as I mentioned, we do have a modest reduction in terms of sequencing consumable outsource for the full year and we are acknowledging that and that's driven by the benchtop and the desktop phenomenon.

Francis deSouza

And then in terms of our partnership strategy and QIAGEN in particular, we – as you know, partnerships has been a core part of our sequencing strategy for a long time. In fact, when we launched the MiSeq the XBOX in the end of 2013, we launched it as an open systems platform and it was clear that way by the FDA and since then we signed a number of partnerships where they build IVDs on our platform and number in China like Berry and Burning Rock and Amoy and we've been in discussions with a number of other companies over the years.

We have been talking to QIAGEN for a while. We did not talk to them about GeneReader and frankly, we have learned about their GeneReader plans like everyone else did from the news they put out. So our conversations with them has been around their IVD panels and their portfolio there.

And building those panels and our sequencer and that continue to be an important part of our strategy so as do the same thing with Adaptive, and bring those panels to the market. And so, our sail is going to be to look for partnerships that can help us bring to the market and expand our clinical platform and really we view our sequencing technology as a platform the engine to drive those steps.

Operator

Your next question…

Sam Samad

And with regards, maybe I'll add one more thing that, just to address your points around guidance, I mean, we can't comment as Francis said around the timing of the discussions with QIAGEN, but we did have in our expected guidance revenue from potential partnerships and collaborations.

Operator

Your next question comes from Dan Brennan from UBS. Your line is open. Please go ahead.

Dan Brennan

Great. Thank you for taking the questions. I wanted to ask a question about NovaSeq as we look out to the fourth quarter, I know you are still guiding towards a doubling in placements 4Q versus 1Q. So I am just wondering kind of what datapoints can you share towards confidence towards reaching that number. I know, Francis, in the prepared remarks or maybe in the Q&A you mentioned UK Biobank and how much was incorporated or occurred in Q3.

So possibly there is uptake there in Q4 and then kind of related to that, I know you mentioned about a third of the customers have upgraded today entering your force. So I am wondering, as a related question, what's your confidence level and kind of the most of these customers ultimately upgrading as you've been pointing to you and is there anything that needs to be done possibly to facilitate the rest of the customers to upgrade, whether it be pricing or possibly new full cell introductions? Thanks.

Francis deSouza

Sure. There are a number of orthogonal vectors that lead us to feel good about NovaSeq placements in Q4. So I will start by saying that, as we look back over the year, we are very pleased with the placements of NovaSeq and also frankly, NextSeq over the course of the year. So we are entering Q4 with strong momentum around NovaSeq placements. We are – we have line of sight into a pipeline of potential deals that could drive the number of placements that we need to meet the guidance that we've put out, but the number will be flat to slightly up from last year. And then if we look at how much opportunity is still left in the installed base, we talked about the fact that only about a third of the HiSeq customers have begun that upgrade journey and so there is still lot of Greenfield opportunity in front of us that we are addressing to get to the number we get to over the course of the year. So, all those vectors point to our level of comfort around the NovaSeq placements.

Operator

Your next question comes from Derik De Bruin from Bank of America. Your line is open. Please go ahead.

Derik De Bruin

Hello and good afternoon. Couple of questions. First one, I just wanted to get a sense on sort of like your confidence and you talked about feeling good about all of us in NHS coming in and so a couple of questions, one is, can you help us understand the magnitude of how you are looking at those and what they could potentially contribute as you look to that – thinking about the incremental both could be in 2020? And I know, and particularly on the NHS one, I mean, is there any reason that gets pushed out given some of the uncertainties in the UK right now on Brexit going on? And then, I've got a follow-up.

Francis deSouza

Sure. So, I'll start and talk about the deal that you talked about specifically. I'll go with the NHS. So, we have no revenues really from the NHS coming in this year. And that we've been working with them on the ramp up which we have a high degree of confidence that it will happen next year, in fact we believe it will happen in the first half of next year.

What we are working with them now is what that shape of the curve looks like. And so, that's still a discussion point and so, while I have high confidence that we will kick off the NHS, it will take a little bit more work for us to come back to you and say, okay, so this is what the shape of the curve what 2020 looks like.

Regardless, all of it is incremental, because we didn't do any NHS revenue this year at all. If you look at All of Us we are in a similar play where we are working through with the All of Us team on the ramp and that we fully expect to happen in the early part of next year also both on the array side and on the sequencing side.

And again, all of that is incremental. I feel good about the fact that All of Us has already recruited the participants and so they have that ready to go. They have done the work around consent and return of results that they are working on right now.

So they will have a lot of the infrastructure ready to go once it kicks off. Again I have confidence that will kick-off and we'll come back to you with what that will look like but all of it is going to be incremental as we go into next year.

Operator

Your next question comes from Steve Beuchaw from Wolfe Research. Your line is open. Please go ahead.

Steve Beuchaw

Hi, it's Steve Beuchaw. Happy to be here.

Francis deSouza

Hi, Steve.

Steve Beuchaw

I wanted to try to address, but I think it's a kind of central theme of the call and it's the elasticity of demand associated with NovaSeq. I would agree with Puneet's comment earlier that Nova driving elasticity and ultimately acceleration is really critical to the story. So I wonder if you might be able to leverage a very unique opportunity you have which is you get to see BaseSpace, right? From period-to-period, new CMS data is coming through from Illumina sequencers in a way that those of us on the outside don't get to see. It would be interesting to hear what you are seeing in BaseSpace and where and whether you see that for you being evidence of elasticity not necessarily just on revenue growth today, but on data generation, project flow and aggregate demand for sequencing at the end-user level?

Francis deSouza

That's a really great question, Steve. And we do – as you can imagine, monitor the activity in BaseSpace very closely to get insights into what our customers are doing. I'll pull out some things that we look at and some of the data we've uncovered so far. One of the things we look at pretty closely is what happens with customers that transition to a NovaSeq.

And so, we look at it from a High-Throughput-to-High-Throughput conversion. So what happens to high peak or ex customers who they know as NovaSeq and we look at from NextSeq to NovaSeq perspective to say okay, when a customer, who is a NextSeq

customer primarily adds a NovaSeq, you see a drop overall in their consumable spend, because they are able to leverage the lower cost per view or not.

And what we are finding in both of those scenarios is that you actually see an expansion in their consumable spend, right? That customers will add and NovaSeq – or will upgrade to a NovaSeq because they believe that they are having growth in their business. And so – I will give you some anecdotal color.

So for example, we had a customer that was primarily in the NIPT business. That was primarily a NextSeq customer. And really look to add their incremental NovaSeq purchase as the way they get into some of the more sequencing-intensive oncology segments for example. And so, NovaSeq helps to put together the business case for their entry into the oncology space.

And so that's an example of a customer that had its business continuing to sequence for NIPT primarily on a NextSeq, but is expanding its business based on the economics it can get on NovaSeq. We also look at the kinds of applications that are driving the NovaSeq utilization. So we look hard at – we expect customers to be doing genomes and certainly they are and the volume of data on NovaSeq is very high. Last quarter we now crossed over where NovaSeq as a platform is generating more data than any other platform we had. It's our path to HiSeq X. We expect that genomes, we expect that exomes and what we are finding again is those are exactly as we would expect to be biggest applications in NovaSeq.

We are not finding cases where customers are using the NovaSeq as sort of a big machine to run other applications more cost-effectively. And that's again the most to on genomes. And so, again we look at the mix and how customers using and those are some of the qualitative datapoints that I can share with you around what we are seeing in BaseSpace.

Operator

Your next question is from Jack Meehan Barclays. Your line is open. Please go ahead.

Jack Meehan

Thank you. Good afternoon. I just had a two-parter. First, one of the things we hear from the big POPSEQ customers is that the volume is going to be dictated by price. So, I was just curios if you have any thoughts on flow cell innovation and when you think the right time is to pull the lever on price elasticity?

And then, more of a guidance philosophy question, obviously, some of these big projects have been delayed. I am curious, as we are sitting here, as we get to early January, just how you are thinking about guiding around some of these big projects depending on the level of visibility that you have at that time?

Francis deSouza

It's another great question. So, as we talk to our population sequencing customers, and we start with the fact that we are actively engaged with over 50 of these initiatives now around the world you are right in the sense that some of them will move more quickly if they could access lower pricepoints. And so there is definitely some elasticity on the pace some of those opportunities could move related to the price.

What we are able to do and what we've done before, with Gel for example and we'll do going forward is, as we get close to an initiative getting ready to go, we do engage into discussions around looking at the term of a project and we have good line of sight into our own roadmap of flow cells and instruments over the term of that project and we are able to price for our customers based on where we expect the technology to go.

And so, once a initiative gets closer to getting done, we can engage those kinds of discussions to accelerated and getting over the line. So far, the pricing has not been a gating factor on any of those initiatives to get done. And we won't let it get to that, right, as we feel an initiative is ready to go, we can engage in the discussions that I talked about to make sure that we can match their needs to pricing based on the visibility into the roadmap that we have.

We also know that as we engage with them, that overall, their price per patient, their price per sample is so much more than just the price of sequencing. And so, we help with the reference architectures. We have examples where we have been implemented in an end-to-end way with a set of partners.

And so we help our customers take friction out of the system and overall take the cost down per patient and per sample by helping them think about what the end-to-end flow could look like.

Sam Samad

And maybe I can comment, Jack, on the guidance philosophy. I mean, as we talked about in the last quarter, we are taking a more – I'd say cautious approach to where some of these population genomics initiatives because there is a high degree of an uncertainty around them and it's not a perfect time. We don't have perfect visibility to them.

Having said this, we will look at them individually case-by-case and try to understand those that have high degree of certainty that will start to where they will start to actually process samples. Those that have recruited patients, those that are - have very specific timelines and deliverables and milestones that we have visibility to and obviously we have discussions with the different governments around those as well.

So, as we look at specific ones, we have good visibility for the All of Us. We know where they are. We know what they've recruited and we have good insights on that. So I think there is a high degree of certainty that that will start happening in 2020. The NHS commissioning, we have a high degree of certainty that that will start happening, it's a question of how much and what that curve looks like as Francis alluded to earlier.

Obviously, there is ones that in flux, like the UK Biobank and others that that will be part our build as well. But too early to tell you about 2020, but that's the general philosophy.

Francis deSouza

And so those big ones just so everybody knows I mean, those are ones that we are personally involved. And I've been to the UK a number of times now I the last three months. So, I feel like we have good visibility into how those are playing out.

Sam Samad

Yes. And one last thing on that one Jack sorry. We will also be transparent on telling you which ones are included in the guidance and which ones are not and so we will be specific and transparent on that.

Operator

Your next question comes from Sung Ji Nam from BTIG, Your line is open. Please go ahead.

Sung Ji Nam

Hi, thanks for taking the question. Just that I guess, another question on China understanding there was some funding issues. I was wondering if you could comment on the competitive dynamics there what you are seeing, greater competitive headwinds. Thank you.

Francis deSouza

Sure. I'll start by saying that overall, we are not reaching a change in the competitive dynamic in China. It's a competitive environment. We are maintaining our share in China and it's something we monitor very closely. The dynamics we are seeing is that there is definitely growth playing out in the clinical market driven by oncology and NIPT.

And that's strong double-digit growth and that continues to be the case. And so, we are participating in it. The other players in the market are participating in it. And there if anything we are doing maybe even little bit better than holding our share. The research side of the market has slowed down. So we saw growth and I say, we, we as an industry saw growth in that market in 2017.

We saw growth in the research market in 2018 and we are definitely seeing a slowdown overall in that market this year. There are numerous datapoints that show that overall funding in the research arena has gone down from last year and so, we are seeing – we, as well as other players in that space are seeing a deceleration in the research side of the market. So, that's happening across players in the market.

Operator

Your next question comes from Bill Quirk from Piper Jaffray, Your line is open. Please go ahead.

Bill Quirk

Great, thanks and good afternoon everyone. Two part question from my end here. So first off, with respect to the NovaSeq placements, has all the systems for the UK Biobank project has been deployed?

And then, secondly, Francis, if we think about some of the catalyst that you highlighted at the end of your prepared comments, can you help us think about the relative importance of them? In other words, we have a number, all of them really have outstanding catalysts, we had some guidelines endorsements for things like NIPT, reimbursement for rugged clinical approval for some of the test moving through FDA or obviously funding timing which we've talked a lot about today in terms of popgen. So, could you help us just think about the relative magnitude of this? Thanks.

Francis deSouza

Sure. Let me start with the UK Biobank question that you had. So, certainly the labs that are doing the sequencing for the UK Biobank have ramped up and they are sequencing. Now, they may choose to augment the fleet that they have over the course of the project and that's certainly a possibility. But they are off.

They have got what they need to get started and they are sequencing in full force to get going. So, that happened at the end of Q3 and it's going to play out again in Q4 and over the course of next year. The clinical market, there was a big question you've asked, and as you pointed out, there are number of moving parts to the clinical market and let me talk a little bit about what's most important.

And I'll start in a little bit of a segment story. So I'll start with NIPT. In NIPT, the biggest drivers of growth are going to be the national decisions that are coming out of Europe. So, for example, Germany, seeing reimburse for high-risk adding to what the UK is doing and France is doing and Denmark is doing and Netherlands is doing, and that's actually a European story that's true in Japan.

And in the U.S., it's going to be when you see the last two hold outs around the average risk reimbursement but we need to cover averages. So in NIPT, I'd say, the big story is around getting reimbursement continuing to expand and we are seeing that. We are making progress and that's going to be the probably the biggest fuel on the fire in terms of the growth rate accelerating in NIPT.

In terms of – I'll jump to genetic disease and then I'll get to oncology. In genetic disease, we've made very good progress in terms of reimbursement. So in the U.S., there are over a 150 million covered lives now that have access to - or whole exome and whole genome sequencing in the event that the child has a genetic disease.

The bottleneck there is not reimbursement. The bottleneck there is utilization and so, although there are 250,000 children here in the U.S. that have the indication the condition and have reimbursement in place, if we look back over the last 12 months, just over a 1000 tests ordered. And so in the genetic disease market and the biggest near-term opportunity there is in the U.S., the big driver is going to be around the utilization.

And educating the physicians around when to order the test making sure that they are able to interpret the results when they get the test. And so, that's work that we are doing through our medical affairs, clinical affairs teams and through great partners and customers like Rady's Children's Hospital in San Diego that's sort of driving a lot of the awareness around genetic disease.

In oncology, we are seeing very strong growth. We are seeing already, we are seeing reimbursements continue to build. We are seeing panels proliferates and so, there, there are number of things that will drive the further acceleration of that growth rate. One is the availability of an IVD product that now makes these tests accessible to community hospitals.

All of the action happening in oncology, even though we are seeing big growth there, it's driven in the academic cancer centers. So the sophisticated labs. And so, an availability of an IVD actually will catalyze further acceleration of that market.

And then, the continued development of precision oncology therapy as more therapies emerge in the market, it really pulls the need for NGS testing for patients to get access to those therapies. So those are some of the big drivers in oncology.

Operator

Your next question comes from Vijaykumar from Evercore ISI, Your line is open. Please go ahead.

Vijaykumar

Hey guys. Thanks for taking my question and I had two quick ones. Maybe I'll start with the housekeeping one. Sam, looking at margins in the Q, can you give a sense of what the underlying margins for XD, I guess the collaboration payments?

Sam Samad

Yes. Vijay, thanks for the question and welcome to the call. We actually had very strong margins in the quarter better than expected and really the key driver for that, to your question was the revenue driven from some of the IVD licensing deals. And those are at a 100% margin essentially, because it's all margins. It's revenue, but all margins.

Operator

Your next question is from Mark Massaro from Canaccord Genuity, Your line is open. Please go ahead.

Mark Massaro

Hey. Thank you for the question. I guess, of the revenue you've recognized here in Q3, how much of that was related to the platform access fee from QIAGEN? And then, I guess, more broadly Francis, can you talk to why you think QIAGEN is an ideal partner? And just give us a sense on what types of additional kits you think will be incremental to driving additional sequencing?

Sam Samad

Yes. I will take the first portion of that Mark and thank you for the question. We haven't broken down the partnership revenue that we got from QIAGEN, but as we indicated, approximately $30 million was driven by this deal which reflects access fees and reflects some – also other revenue that we recognize as well. So, it's not just entirely for the access fees.

Francis deSouza

Yes, and then, I'll take the second part of that question which is what makes them a good partner and why did we choose them and why do you choose with that and how do we choose the partners that we choose. And what we are looking for is an ecosystem of partners that will expand the menu on our sequencers and give us access to additional clinical domains.

And so, if you look at what QIAGEN has today in their portfolio and where they are strong, right. So, they have a set of small cancer panels and we don't take to market any small cancer panels ourselves really. And they also have strength in other clinical domains, right. So they have a business of infectious disease for example and a number of other clinical domains where they already have the commercial capabilities to take products to market.

And so, that's exciting for us. That's exciting for us at the starting point in our relationship and also gives us line of sight and to how this relationship could expand into other clinical domains. Similarly, if you look at Adaptive, they have also got a terrific set of products in areas like, immunology for example, in monitoring for MRD and in blood cancers.

And so they give us access to unique menu that we can take to our customers. And so, that's what you should be looking for. Our other partnerships in China for example, Berry, Annoroad, Amoy, gave us access to two things. They gave us access to a set of tests. So menu in our sequencer and in that case, they gave us also access to geographic distribution.

And so, those are some of the strategic capabilities we are looking for as we sign these partnerships. This is part of our business. This has always been part of our business plan. It is fundamentally, in our opinion fundamentally we are a platform play and while we

choose to take some end-to-end solutions to market ourselves in select areas, we believe the best way to maximize long-term value across all the different domains that sequencing is relevant for.

To view ourselves as a platform and then find the best set of partners that give us both access to menu and access to commercial reach.

Operator

Your last question is from Derik De Bruin from Bank of America, Your line is open. Please go ahead.

Derik De Bruin

Great. Thanks for taking me again. So, Jack essentially asked the question I wanted to on sort of the guide in elasticity but I wanted to actually have a question follow-up that I thought of which is, I wasn't quite sure about the mid – the desktop situation and why you were seeing the slowing and could you go through that again and just sort of clarify what the underlying cost of that and how you sort of see that resolving in Q4?

Francis deSouza

Yes, so, we started to call that out in Q2 on the call. And now we have additional quarter of data. And so, what we are seeing is two transitions playing out. One transition playing out is we are seeing customers migrate up to bigger systems and that played out at the top-end of MiSeq customers that moved to the NovaSeq platform and similarly, we had some high volume NextSeq customers that started to purchase NovaSeq. And so, one trend playing out as customers moving up to bigger system and as I said before, we've seen this play out the full whereas customers typically move to bigger systems, because they expect to do more sequencing. And so, while that puts some near-term pressure on pull-through for instruments over time to increase sample volume and growing business, we expect their consumable spend to grow and sort of take the pressure of the pull-through per incident.

The second trend that we are seeing is, people embracing the NextSeq DX that we brought to the market. And so, we saw customers both on the MiSeq base as well as the NextSeq base that are starting to purchase NextSeq DXs. Now, as the clinical box takes a little time for them to validate those boxes and ramp them up, and so that drove the pull-through, the NextSeq pull-through per instrument down in the quarter. Again, we believe long-term, that's a really positive trend for our business and NextSeq DX as a percentage of total shipments move from 10% last year in 2018 to 20% in 2019. So really good progress from a clinical perspective. In the near-term, those new DX boxes put pressure on pull-through per NextSeq until they ramp up. But again, it's a good sign for long-term growth.

Sam Samad

Maybe the only thing I would add to everything Francis said is that, in terms of the timeframe as to when we expect this to continue happening for, Q4 reflects the assumption that both NextSeq would be at the low end of the pull-through range and MiSeq would be below the pull-through range. So, just to be very clear, we are expecting this in Q4 and that's what's included in our current guidance.

Operator

I would now like to turn the call back over to Jacquie Ross. Thank you.

Jacquie Ross

Thank you, Christina. As a reminder, a replay of this call will be available as a webcast in the Investors section of our website, Thank you for joining us today. This concludes our call and we look forward to our next update, following the close of the 2019.