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PRESENTATION

Dan Arias - *Stifel Financial Corp. - Managing Director*

Welcome back, again, everybody, to the 2020 Stifel Healthcare conference. We are continuing with the life sciences and diagnostics track day two.

Our next presenting company is Fluidigm. And we're happy to have CEO, Chris Linthwaite, with us. Chris, I'm going to turn over the floor to you and then you can go through your presentation. I'll circle back around when you're done.

Chris Linthwaite - *Fluidigm Corporation - President and CEO*

Sounds good. Thank you very much, Dan, for the invitation and for the kickoff, and thank you to the team for including us in the healthcare conference.

So, my name is Chris Linthwaite. I'm CEO of Fluidigm Corporation. This presentation will include some forward-looking statements. For full GAAP and non-GAAP reconciliation, you can refer to our website on the Investor Relations page.

So, Fluidigm's primary mission is -- and goal is to drive meaningful insights into health and disease with an ultimate goal to improve health and improve life itself. Really, thinking about it from two dimensions; one is advancing human health by deploying innovative technologies, and we'll talk about those technologies in a moment, and we're deploying those technologies to reveal and understand and address the biological complexities of disease, so both the causal drivers or disease as well as the detection of the disease itself, and as a tool for developing companion diagnostics and healthcare intervention strategies as well as to, more recently, to do diagnostics-based data collection reporting.

There's six things I want you to take away from just kind of the highest level from Fluidigm from an investment perspective.

One, our highly differentiated, real-time PCR solution is elegantly well-positioned to support -- to drive high-throughput infectious disease detection. It's a very large market that includes both infectious disease in a COVID context as well as the larger respiratory market over a longer term, and we'll have some perspectives on that market in some coming slides.

We're a leader in a high-growth and underpenetrated almost $2.7 billion cytometry market. And where we participate primarily is in the high parameter applications, and more recently, in the nascent or emerging market known as high-plex imaging.

We're well-positioned to benefit from the tailwinds in COVID-19 testing, infectious disease as well as immuno-oncology markets writ large. Our focus on the immune system and the immune system has the implications in hundreds of diseases. And so, we have a broad exposure to a broad cross section of healthcare-related questions.

We demonstrated our clinical research or the researchers using our technology are demonstrating real-world utility, which is creating a virtuous cycle in transition from basic research into more applied settings with a goal towards moving into the clinic or into a diagnostic setting in the years to come.

We're driving our core business model has been an instrument placements based model with we have increasingly been placing incremental focus on driving utilization and consumables pull-through and more recurring revenue streams based upon those instrument placements.

And hand-in-glove and somewhat understated has been the work that we've done in terms of quality and regulatory investments driving continuous improvement and operational efficiencies all with a commitment to sustaining long-term revenue growth.

Kind of in a nutshell on one slide, here's a little bit of the background of Fluidigm as an organization.

We have approximately 600 employees now worldwide. Over the rolling last four quarters, we've seen acceleration of revenue with $126 million on a rolling basis, which is inclusive of the near-term impacts and COVID headwinds of Q2 time period.

We're seeing attractive product and service margins on a GAAP basis of almost 59% and on a non-GAAP basis, a little over 68%. We're headquartered in South San Francisco, which is where I'm calling in from today.

We conduct manufacturing activities in our own self-manufactured sites in Singapore, in the suburbs of Toronto, Ontario in Canada as well as in South San Francisco. And then, we use contract manufacturing partners to supplement our own internal manufacturing capabilities.

As of our Q3 call, we are now involved in more than 110 clinical trials and have seen almost -- a little over 1100 now mass cytometry related publications. We leverage a large patent estate with more than 585 issued or pending patents worldwide.

We're really harnessing the power of two technologies. On the one hand, it's our core or CyTOF technology, which is a hybridization of the concepts of mass spectroscopy and time of flight, which allows very exquisite levels of precision in measuring complicated signatures that obviates the need or some of the challenges that exists in fluorescence-based approaches.

And then, we have a flow analog to it that's related more similarly to flow cytometry. So, we harness this core CyTOF detection platform in two ways. One is to look at single-cell observations in suspension and the other is to look at it in -- with contextual image information in its native state.

The other is the Microfluidics platform. And Microfluidics is an area that we'll spend a lot of time in there up front. Because it's been a workhorse in COVID-based activities, but it really has applications well beyond COVID. And our CyTOF technology is actually had quite a contribution in COVID-related research evaluations of cohorts of infected patients and impacted cadavers in the analysis of pathology of the virus and immune response.

First, let's talk a little bit about the market opportunity. This is probably one of the most fast-moving markets that we have seen certainly in this industry in this short of time period in our professional lives.

In 2020, we've seen a dramatic acceleration of COVID-19 related testing and we really break it down between the United States and Europe. So, United States is in the darker purple on the bottom and the European numbers on the top.

So, on a combined U.S. and European perspective, we estimate this market to be approximately $9 billion to $13 billion and that's quite a large acceleration from anything we've experienced prior to 2020.

We take the point of view and have the perspective that this market is going to continue to expand. Regardless of the vaccine development, which we are anxiously awaiting, the publications and the studies related to the current vaccine programs, and we're as enthusiastic as anyone to see these vaccines made widely deployable for the world's population to benefit.

We believe that there's a high level of complementarity with testing. And in fact, the two-new to be discussed hand-in-glove, and in fact that we will see an incremental or exponential expansion in the addressable market for testing in the 2021 time period.

And a lot questions are asked and our perspectives are asked on what will '22 and '23 look like. And in our -- from the moment where we stand today, we believe '22 looks actually fairly similar to what '20 looks like. And we don't see this as a dramatically decelerating market. Rather, if you look at this from a '19 perspective, this is -- and all these years to be a significant step up in demand as compared to historic levels.

Now, this market will evolve and we'll talk a little bit around how it may evolve in the coming materials.

The second part of the market is related to mass cytometry, for us an addressable market. And we focus on the high-parameter applications as well as the nascent and quickly emerging spatial imaging market.

In our -- from our perspective, the addressable market is approaching about $1 billion annually in U.S. [B] terms, so about $800 million in 2020. And it's today roughly split between academic and research institutions and hospital and clinical settings -- I'm sorry -- today, in academic and research institutions and in pharma, CRO, and biotech.

We see over the coming years, over the next five years, we see the emergence of hospital and clinical-based testing, which will represent a very large and rapidly expanding addressable market. In addition, the academic and research markets will grow quite attractively, but on a blended basis, and on an accelerated basis, the pharma, CRO, biotech segment and the hospitals and clinical testing segments will represent probably the largest or the larger two sub-segments of acceleration over the measurement period. And on a combined basis to this is approximately a 27% annual grower.

So, I'm going to click down a little bit deeper into Microfluidics and how we're deploying Microfluidics technology in the diagnostics context.

At the core of our technology stack in Microfluidics is the integrated fluidics circuit. This is a highly differentiated proprietary platform that combines combinatorial PCR and achieves massive savings and through the ability to kind of multiplex or added in this particular chip set, which is the picture on the screen.

The ability to introduce as many as 24 different assays. So, you can think about it as 24 different pathogens or 24 different biological questions that you want to ask and interrogate 192 patient samples simultaneously.

And using our proprietary technology and Microfluidics architecture we allow these assays and samples to be mixed in the core of the chip at one nanometer -- nanoliter scale, so extremely small levels that the full chip itself is about the same size as a 384-well plate. But we use a very small fraction of the amount of expensive reagents that are challenging the 96-well and traditional PCR formats.

So, we can balance both throughput and plexity with a very attractive cost structure on a system or workflow that I'll show in just a moment.

We have multiple chip sets. This 192.24 chip has been the workhorse in the current COVID outbreak. And this particular instance allows kind of maximum throughput potential on a single Biomark detection platform. It would be also applicable to use our 96.96 and some of our other chip sets to address the same sorts of questions.

So, our value proposition or workflow includes automation, throughput, and scalability. We use our Juno preparatory system to load, to mix from those outer well chambers, to mix the assays and sample inlets together into that small, darkened square in the middle of the plate on the Juno preparatory system. Those chips have been taken out of that system and then loaded into the PCR platform for direct detection.

So, our full workflow includes the preparatory system, the Biomark protection platform. We provide reagents and kit components as well as the chips that are used to run the assays themselves. And we put this all together into what we call an IFC Bundle. Our most recent instructions for use and emergency use authorized configuration includes all of these components and is under the market name Advanta Dx SARS-CoV-2 RT real-time PCR Assay Reagent.

When we think about this technology stack and with the hub and spoke type mindset, at its core, we continue to reconfigure those same -- the loading system, the detection platform, and the chips. And then, we can reconfigure them for specific questions.

On the far right is the product that was our emergency-use authorized product that we released in late August of 2020. And in this case, we eliminated a critical step and extraction -- eliminated the extraction -- the need for extraction. And we introduced the ability to use a saliva-based sample substrate that flows into our workflow.

We also can support nasopharyngeal and anterior nasal. We can support extraction-based approaches and we can support a broad menu of laboratory developed tests to go after other or other people's approaches to COVID-based detection. So, in that case, we're providing a Fluidigm inside approach versus the Fluidigm extraction-free saliva test, which is a fully kitted solution.

We have additional product center development, some of which I've talked about in the past or the pan-respiratory panels. We're also creating novel tests and methods for detection, which we have not given much information about at this time.

The key takeaway here is that the core is this hub and we're going to continue to add spokes in the coming weeks, months, and years. And this platform is incredibly flexible for addressing even beyond COVID-19-related questions.

We've been working hand-in-glove with U.S. governmental organizations to deploy our COVID-related solutions. Some of them are listed here; the Department of Health and Human Services, Food and Drug Administration, the NIH, and we'll talk about the RADx program in just a few minutes, also a very important partnership with the Department of Defense and specifically the DARPA arm of the Department of Defense, which focuses on next generation diagnostics platform. And we've been working on one that's their code name the ECHO program.

So, just going to just click down about what is our Advanta Dx SARS-CoV-2 assay look like. So, it's a total instrument runtime of approximately three hours. It's direct saliva collection to room-temperature stable for up to five days. It requires no proprietary viral transport mediums or anything. It takes only a sterile collection tube, which gives us a high level of flexibility and in the future, can potentially enable -- right now today our instructions for use are tied to supervised collection, but there's no reason why we cannot adapt to the at-home collection and unsupervised forms of collection and potentially accommodate many different industry players approaches to collection technology.

We heat-treat the samples. There's an upfront, real-time amplification; one-step RT and preamp step. We prepare the assays. They're mixed and loaded on the loader, detected on the PRC platform, the Biomark. And then, we have analysis and reporting tools that then feed into labs reporting tool either their limbs or medical record systems that then oftentimes tie into third-party apps that then feed the results to different stakeholders.

So, key takeaways, extraction free. No need for viral RNA extraction kits, incredibly scalable. We'll talk about the ability to achieve thousands of samples a day. And when mashed with high throughput automation, the potential to unlock as many as 6,000 samples a day, but that really is easier to be done when you have an automated platform that works with the decapping and other steps that are outside of this workflow.

We've done in batch formats. So, you got 192 samples and controls in less than three hours. And once you have your operation up and running, you're getting results approximately every 20 to 30 minutes.

And we do believe that saliva collection is a convenient and stress-free approach, and drives higher compliance for testing in the industry as well as in our own hands, we've shown that it's 100% concordant with nasopharyngeal, which has been the gold standard for detection on PCR platforms.

We started in the early hours of the outbreak as selling our laboratory developed test configuration, the Fluidigm inside approach and Q2 time period sold about 100,000 tests. We saw on the heels of our approval in the backend of Q3'20 -- of this year, we've seen acceleration which we sold about 795,000 of those tests in the Q3 time period. So, we're close approaching million tests delivered in the COVID market for diagnostics purposes, which given that we were not a diagnostics company coming into the outbreak I think has been very strong and very constructive adaption of our technology.

And hand-in-glove has been enabling instrumentation is placing our platforms into the labs that we know will be conducting the workhorse testing in this current environment. So, we've seen a significant acceleration. We had 12 placements in the first part of the year and then 31 placements in the Q3 time period of which approximately half of those placements have been going into contract research organizations. The other half are going to government public labs, public health agencies, and into academic medical centers or hospital systems in which they're doing testing for the hospital population, their student population, faculty and/or serving their own local communities.

Capacity is one of the things we've been keeping a close eye on. So, our technology can rapidly scale. And with this, we have been investing in manufacturing capacity to ensure a seamless availability of tests into the market as we increase our footprint of instruments and customers who are conducting COVID-based testing.

In the late July time period, we announced the RADx award to Fluidigm of up to $34 million, which is a grant. And that grant has been earmarked for two purposes. One is for manufacturing capacity expansion and the second is for some novel technology development for testing.

And you've seen we've been on a steady capacity expansion journey of which we had about 2 million tests available to sell in the Q3 time period. In the Q4 time period, we project as many as 6 million tests to be available with significant continuous increase in our total available manufacturing capacity in the first half of next year.

Just recently, we've announced an activity that we've under -- we've been working on for a number of weeks but really kind of talking about it as a cohesive program.

Our program and our approach, which is a little bit different than some of the other players in the industry, has been focused on connecting our customers to and building simultaneously network of testing partners to increase access.

So, first, as we've been -- as one of the -- as the first commercial-grade, extraction-free, saliva-based SARS-CoV-2 test, we've been getting tremendous in-bound interest and increased awareness around the world for the viability of saliva as an attractive approach. That interest is coming from broad section of the world. I'll talk about that here in another slide.

What we needed to do is match that interest to the people who can conduct the tests. And so, we've had to work on -- and we've been looking for ways moving beyond only a test provider to all the other pain points in the ecosystem that are required to get results in a timely manner to people who are desperately in need of information.

So, we put focus on sample collection and logistics and the testing process upfront. We've been recruiting customer testing labs to and standing up labs that are servicing their own community, think of those as academic hospital environment, and then working and recruiting third-party partners such as Healthvana, who we announced recently for the data analysis and patient results. So, to deliver that information to drive efficiency in the assessing process and then efficiency in the results -- in getting those results out to various stakeholders.

So, we work with this entire ecosystem with our Fluidigm COVID-19 advisory team who helps match the needs through an intake process and then helps guide through different solution combinations better well suited for each of those individual customer use cases.

The announcement today was formalization of an activity that we've been doing for some period of time. And so, as we built out this network, we have now started to put together -- in this case it happens to be on a new webpage that we announced this morning -- the organization of this Community Connect and a way that we can systematically capture in-bound interest from campus administrators, universities and stakeholders such as university parents, K-12 in the education market, skilled care facilities, the nascent but now quickly emerging return-to-work market. There's a direct-to-consumer elements to this. There's sports and entertainment. And there's actually more segments that sit even off this page.

And so -- and in simultaneous, so we continue to recruit more CROs. So, we see ourselves as both a provider of technology as well as a market maker that helps match the different needs that are coming in from the market to locations in which they can get timely test results.

And we think this represents a big step forward moving into this ecosystem as a thought leader around imagining what is the needs that are just around the corner and building a systematic approach and a scalable approach that is one part technology and the second part is about business model and engagement and intimacy with all of the use cases and needs of each of these different customer segments.

And we believe that over time as the testing volume and demand will increase in the coming year in '21 and '22 that each of these segments will have their own relative dynamics. And so, we need to have a strong level of intimacy with each of these segments, and many of these segments will be more conserved even with a vaccine deployed globally.

Hand-in-glove as I talked about technology as we're building the pipeline of new products. So, we're not just standing still in terms of business and technology innovation. We're also building our partnership innovation. We're also adding technology innovation.

We've announced most recently a next generation instrument that's on the horizon. We'll be presenting more details of this platform in the coming weeks. And we're adding new testing menu that ties to -- that's going to take advantage of these chips and the core intellectual property and power of the integrated fluidics circuit.

So, the IFCs, we're now looking at different ways that we can build out those test menus, and even configuration that reflects the individual used cases of many of the customer segments we just discussed. And all this is feeding into an ever increasing group of customer testing labs who will be our critical partners for conducting these tests.

I'm going to spend a couple of minutes on our mass cytometry portfolio, which is a critical part of the company story.

Immunology, we, really a couple of years ago, recognize that the immune response and understanding immune response and immunology or immunological related insights is going to be so critical to hundreds and hundreds of different diseases.

The outbreak of SARS-CoV-2 has put a punctuation mark on the importance of immune response with the disease or a pathogen that both initially starts as an infectious agent and then infers or incurs or drives a strong immune response. But this is true and you can see it in the thousands or more than a thousand publications done on our technology stack.

You can see stories related to cancer, stories related to autoimmune disorders, chronic inflammatory conditions, and scores of other diseases. And so, we're really bullish on the long-term importance of this technology. We think that there is no established leaders in terms of measuring immune response. And we think this is a huge new vector for continuous growth for our technology.

We're advancing in general in COVID-related work immune profiling. And we're doing immune profiling and patient stratification. So, we're looking at large cohorts coming out of hospital systems, so people -- thousands of people who have been infected, and helping identify what has been going on in the background of their immune -- in their immune signature.

This is also allowing us to start creating insights on who is having differential responses. And as we start identify biomarkers, we can potentially start to develop risk scores, therapeutic and intervention strategies as well as optimize vaccine and therapeutic intervention strategies for the future. And this backbone -- this approach we think is going to be fundamental and cut-and-paste for many, many diseases for years to come.

This is just a quick picture of the CyTOF technology. So, on the left side, you can see our suspension version, which we call the Helios product, allows us to interrogate cell phenotypes and functions of up to 50 markers all from a single tube. And when mated with our imaging platform or IMC, it becomes a Hyperion. So, we have a unique technology advantage in which you can do both suspension or you can do imaging work interchangeably or use two lock-down components to do pure imaging work or suspension work.

It's robust. It's a proven technology platform. We have almost 300 systems as of the end of last year of 2019 that they're now actively being used.

I want to spend a minute talking about or Maxpar Direct Immune Profiling Assay. This was the gold award for most innovative new cell biology product in 2019. And it allows us to look at 37 different populations that are critical to the immune profile. We put that all into a single tube. And we've matched that with proprietary algorithms and software reporting platforms that allow you to get the answers, so do the technical evaluation of the experiment with five minutes of data analysis, which this is very reproducible. It's supporting site to site, large population cohorts allowing many different centers to divide up the work, and then pool that data into central databases for all benefit.

We think this is really a roadmap for where this technology can go and is part of our -- part of our journey more into the clinic and into clinical and translational work.

We've also introduced the Maxpar Direct kit provides flexibility in panel design. So, we can develop what we have subpanels that identify leukocyte-type populations, can be enhanced to look at intracellular cytokine expression, can perform in-depth T cell profiling, and we see a long roadmap of additional panels that can be built off of this core backbone.

We've supplemented this with an announcement in the Q2 time period of Therapeutic Insights Services. And this gives three simple ways to get high-dimensional insights. You can consult with our Therapeutic Insights teams to design your projects or you can send us your un-stained or stained slides, and we can send you back raw data or help you analyze the results or give you summary results.

You get expert consultation. You can also -- it's a way for us to do -- to work with new technologies and integrate things that are not yet in our catalog and to give certain users access to proprietary and our early-stage technology innovation.

And it's really providing a new level of intimacy with our customers that we find is very complementary. It both drives long-term placement opportunities with our instrument platform and also unlocks segments of the market who are not well-positioned to purchase or commit to the technology platform at this stage.

All of this is driven around a recurring revenue stream model, so built around -- similar to that hub and spoke strategy we talked in Microfluidics. Mass cytometry is very analogous. And this slide happens to show a combination of both mass cytometry and Microfluidics.

But the concept is the same, driving instrument placements, driving value-added content and components that provide recurring revenue streams, and then to layer in informatics solutions all to speed up and optimize and reduce the labor and the complexity on the customer side to get to critical results.

And as this technology recurring revenue stream is at our core, but we're also adding business model innovation, working with contract research organizations, contract testing labs, and providing -- and standing up service arms that help increase the accessibility to a broader segment of the population to this core enabling technologies.

And again, all of this is mated with operational efficiencies internally. We have programs in place to reduce our cost of goods, to reduce our operating expenses, and not -- and do all of this with an eye towards a sustained innovation in both instruments and recurring revenue streams and new partnerships.

So, our business model really combines instruments, consumables, and services. We think we have a strong, double-digit growth business setting up here. And we are really -- just want to thank you for your time today. I think you're seeing a real -- just over this past nine months a true -- a transition between a traditional research use only company and an instrument-based company to one that both straddles diagnostics and clinical utility as well as embraces new business models for the future. Thank you very much.

QUESTIONS AND ANSWERS

Dan Arias - *Stifel Financial Corp. - Managing Director*

Thanks, Chris. That was great. You took us to 2:30 here on the East Coast. Maybe if I could though, I'd love to make a question if have a minute just to finish here.

Chris Linthwaite - *Fluidigm Corporation - President and CEO*

Yes, no problem at all. If I'd known, I would have left you a few minutes.

Dan Arias - *Stifel Financial Corp. - Managing Director*

No. That's all right. Just maybe one on the cytometry business and one on COVID. To your point, the most notable element of that slide that you had on just the 2020 to 2025 outlook is the expectations that you have for hospital and clinical uptake. What do you think are the gating factors? And what has to happen in order to drive that? And then, I guess the follow-on would be -- where are you seeing desire for single-cell resolution? Is that one of the things that factors into that?

Chris Linthwaite - *Fluidigm Corporation - President and CEO*

That's an excellent question. So, I think Dan, to peel it back, you've got to look at the various diseases in which that work is being done. So, there's certain areas in cancer, for instance, in lymphocytes, in leukemia, for instance, in which they've already moved towards much larger panels and larger signatures as a health decision making tool for patient stratification. Those areas have been faster adopters through the clinic.

I think some of the other segments will take longer to evolve. And that's going to be driven by these clinical studies, these clinical trials and studies right now. As you prove that the segmentation is important, that there are combinations of markers that are important, and they classically were used for target identification and drug design.

But now is you're potentially seeing companion tools coming online. And I think -- so the science, these larger studies as the data is analyzed, and we the biological insights related to the intersection of understanding a disease, understanding some intervention strategies, and then combining those to with high-quality publications, you now see it getting pretty shoveled -- more shovel-ready for hospital-grade deployment or for pharmaceutical biotech companies to start integrating into their drug development pipelines.

And I think we're just starting to see that come online. I think for most, it's been in the academic, in the leadingedge academic centers. But those leadingedge biopharma companies are looking for the academic medical centers to do that pioneering work in the preclinical phase one with an eye towards -- is this robust enough to then be deployed in a commercial scale level.

So, I think that's the inflection points we're going to see here over the next few years. Your follow-up question on, I think, is on imaging and single cell and imaging or something related to imaging.

Dan Arias - *Stifel Financial Corp. - Managing Director*

Yes, just curious where the desire for that capability is highest.

Chris Linthwaite - *Fluidigm Corporation - President and CEO*

Yes. I think imaging today has been -- is much more of a research story. It's not -- you're going to see it in translation I don't think very soon. Although having said that, we're in multiple clinical studies and some very large trials in Europe in particular with some of our early adopter customers that pharma companies have been sponsoring.

So, as -- we've been a first mover in this space. So, we are seeing signs already of translational and large-scale clinical work, which frankly has kind of surprised us at the rate of uptick for this. But it is quite early days. That's why it's not clear yet at what level of resolution is going to be most critical. Is it protein, DNA, RNA? We're clearly a big player in the protein scale.

We do believe that single-cell resolution is going to be critical and that there's going to be multiple technologies that are going to coexist in the space. And so, I think ultimately, the science is going to kind of prove it out, which it gets the lion's share of clinical deployment. But we're working on reproducibility, stability to platform, ease of informatics and analysis, and making sure we have the panels and content ready to accommodate the next generation of standardization.

So, as we move from a research-only phase to a standardization, that's the trick for all of us to kind of make sure we're well suited and future proof for translational.

Dan Arias - *Stifel Financial Corp. - Managing Director*

Yes. Okay. Excellent. Let me leave it there so I don't jam up the works here on the sessions. So, thanks a bunch for joining us. Stay safe out there. And have a Happy Thanksgiving holiday if I don't talk to you.

Chris Linthwaite - *Fluidigm Corporation - President and CEO*

You too. Be well. Thank you.
