



Ross Seymore: Thanks, Felicia, and good morning, everybody. I'm very pleased to host the latest edition of the ADI Uncovered series. As Felicia said, this edition is going to focus on ADI's digital healthcare business, a very pertinent topic in today's COVID-impacted world but also a business that's been a strategic segment for ADI for many years well ahead of this pandemic too.

With me today on the call is Pat O'Doherty, ADI's senior VP of digital healthcare, as well as Mike Lucarelli, ADI's senior director of investor relations. Pat's going to kick off today's call with a brief presentation. You should hopefully see the slides on your screen talking about this business. I'll then follow up with some questions of my own asking both Pat and Mike and if you do have any questions, as Felicia said, you can just enter it in the chat function on your web browser or you can send them to me directly at ross.seymore@db.com and I will ask those directly of Pat and Mike.

So with that let me pass it over to Mike to read the obligatory disclosures and then he'll pass it over to Pat to dive into the slides. Mike.

Mike Lucarelli: Thanks, Ross, and thanks to everyone for joining us today to do a deep dive on digital healthcare here. We've held a series now for the past two quarters called ADI Uncovered where we try to give you a peek under the covers and a more in-depth view of some of our businesses that don't get as much highlights.

In this virtual world we thought it'd be useful instead of your typical NDRs or conferences to help you guys understand ADI's business with a bit more granularity and with that said, we have Pat. Pat's been at ADI for quite a long time. He actually ran digital health and healthcare business ten years ago and then he's back at it again and I think there're a lot of good things coming for us in the future as we've seen him invest in this business and Pat will go through that in his slides.

I'm not going to read the forward-looking statements. We all know what they are; we all know what they say. It's the first slide of the presentation and we'll post this presentation in the investor relations web page under the events section and with that I'll hand over to Pat to get started.

Pat O'Doherty: Thank you, Mike, and thanks, everybody, for the opportunity to talk about our healthcare business. Okay, getting right into it, so our healthcare business is a \$400 million business as of last year. It's made up of three very distinct segments. Those businesses are medical imaging, where the business is very concentrated amongst our largest customers, providing them with sophisticated modules and subsystems and projects that are quite heavily integrated and we would be the market leader in several of those sectors.

Vital signs monitoring is somewhat similar to medical imaging in that it has a large component of highly integrated products that incorporate centres and actuators and signal processing but it also has a tail of single-function components as well because there's more variety in the end equipment.

And then medical instrumentation which is the long-tail business so the high variability in terms of end applications, in terms of customers, in terms of product offerings to those customers and really that's where the breadth of ADI's products and technology really plays.

It's much more of a vertical-type business in the two blue segments that we show on the left-hand side. Now, our track record in this business has been that we've delivered fairly consistently double-digit

growth. We also deliver gross margins that are above average for ADI so this is one of our more valuable businesses and one that, even though we report it as part of the industrial sector, is managed internally within the company quite separately and differently and it has been the business that has kind of led the transition from a technology base focus many years ago in ADI to a market base focus and one where building up the main expertise is as important as maintaining technical performance edges.

Now, both of those need to be maintained in parallel but understanding the applications, getting deeper into the systems has always been the driving factor, particularly in our healthcare business but is one that, as you will have heard in some of these other sessions, is spreading across the company and is really maybe what differentiates ADI from our competitors quite significantly.

So, looking back over the last ten years to see, what changes have we made and what have been the results there, so historically it would have been a component-based business. This is looking back more than ten years ago and many of the components that ADI provided would have been designed by our customers onto PCB-based system designs and that was a great business for a long time.

But as the form factor pressures, as the cost pressures and as the volumes increased in this business the need for a transition was becoming evident to us so in the 2010-2014 time frame we decided to take a different tack with this business. We decided to focus very much on building up our systems understanding and developing more highly integrated products with a view to providing maximum value to the end system.

And this was a kind of a different philosophy from what we had been pursuing previously and it was really centred around understanding our customers' world more deeply and figuring out, how do we add value, how do we provide more value to them and therefore capture more value for ourselves.

And it was this move up the stack in terms of hardware integration at the time fuelled by a doubling of R&D in this time period and as you can see on the right-hand side the increased investment period in the blue phase was followed by the result of that. Now, in the healthcare space it typically takes one to two years to win a design-in, particularly in the more sophisticated systems.

It takes five to seven years to get to peak revenue and then we have product lifetimes that are ten to 15 years and even longer and so we saw the results of that change in R&D philosophy and scale, resulting in the growth that we've seen over the last five years, strong double-digit growth.

So that was a very profitable exercise for us and we're now embarked on a second doubling of R&D and that's because of the fact that we've seen this pay off but also because many of the things that are going on in the market today just play into our strongest capabilities and I'll explain some of that later on.

But the new phase is not just doing more highly integrated hardware-based products but it's developing products that incorporate more hardware functionality, software, analytics, cloud connectivity and service and so, as you might imagine, for a semiconductor company that's quite a reach.

It's not that unique within ADI. There are other businesses around the company where we're doing similar things. Healthcare is just in the lead pack of doing that.

Okay, so an example of the more highly integrated hardware offerings that we've developed and have been reaping the rewards from so CT scanners, computer tomography scanners are a principal sector in the medical imaging space and they're very interesting systems because they convert X-rays which are

translated into light into digital and the images that we see from CT scanners typically - whether they're 2D or 3D - are actually - the image quality is completely determined by a photon to bit module that's provided by ADI.

And it's kind of interesting to think that this large, sophisticated system, its image performance is entirely captured within this module that we provide to some of the major players in the market. The module allows for ease of maintenance, it's fully tested, it's compact and it's complete in terms of converting light to digital bits that are then formatted in a way that they can be sent to the main processor.

And so, developing these modules allows us to basically get out of the competitive morass of fighting for every socket. Basically if you're offering a solution where you take the entire function from sensor all the way through to the bitstream going to the image processor then you take all your competitors out of the equation as long as you're providing significant system value.

And so we spent a lot of time with our largest customers in this area defining these products and making sure that they did in fact provide value and the value is very evident in the performance that these CT scanners can provide. Low-end CT scanners contain 32,000 channels. High-end systems contain 320,000 channels and so our ability to be able to provide these products which - each of them can handle hundreds of channels themselves - enables this increase in performance.

And more importantly it allows for lower radiation doses and higher-fidelity images, which gives customers the ability to lower their costs, lower their form factors and squeeze in this functionality and for ADI it increases our content by 4X so it's a win-win-win across the board. That's one example.

So really in the... We're all very familiar of the pressure that the healthcare market is under today, particularly in the US where we spend more and actually get less in the aggregate level than most of the developed countries in the world but we're spending an enormous amount of money on healthcare. We're all very aware that the efficiency of the system's poor. It's very much concentrated on large hospitals and that's for historical reasons more than anything else and, you know, the outcomes really are not great.

And so COVID adds to the pressure on the system, as we all saw over the last six months and really that triggered a lot of changes in the market that were already underway but were underway slowly and the biggest one of those is the rise of telemedicine. The adoption of telemedicine just spiked during the COVID period to date - we're not out of it of course - and that is obviously understandable but it prompted a lot of accommodation for telemedicine which had been slow in coming.

So for example CMS created proper billing categories and physicians were now being incentivised to do telemedicine and that really triggered that and most of the forecasts that I see is that the current spike is going to subside, we will get back to a version of normality but that telemedicine is likely to take about a 30% share of all physician visits and this is very key because if you think about telemedicine, okay, we all have the ability to be able - not all of us; most of us have the ability to be able to network and communicate.

What we don't have is the ability to combine that with clinical-grade measurement in the home and that is the gap that is very, very interesting that's emerging in this space so our business, which is made up, as I said, of imaging, instrumentation and VSM and has a \$2 billion SAM is now facing some real

expansion opportunities and we are absolutely so excited about addressing these and we believe that we can play in a SAM that is more than twice the size of the one that we're doing today.

And the main areas of new activity that are going to drive that are ADI getting involved in chronic disease management in the home, which is the largest cost driver in the industry right now; ADI getting involved in more complete remote patient monitoring solutions, which are clinical - which will be clinical-grade but provided in form factors that are suitable for the home - or doctors' offices as well.

And then a third one, which kind of stands out a little bit but is the biosensing arena and that is really addressing the challenge of point-of-care diagnostics, so taking a lot of the diagnostic tests that are being done today in centralised labs in large hospitals and making them so that they can be done bedside or at home and much more easily and cheaply.

So let me go on to the next slide. So here's an example of just trying to get my arms around explaining the remote VSM opportunity; VSM, by the way, vital signs monitoring. So we've seen consumer wearables evolve rapidly over the last few years. We've seen fairly rudimentary heart rate monitors start to converge into more highly functional wellness wearables and so still devices that are made for the consumer market but are containing an increasing number of wellness functions within them.

And the performance points that started out quite differentiated from clinical are getting better, as you would expect. In the hospital too there has been a big evolution going on in terms of technologies where bedside monitoring, which at the moment is only provided to about 20% of patients in the hospitals, mostly in the ICUs of course; but the other 80% of patients go unmonitored and that's because of cost and size of the equipment that's involved.

But there's a revolution underway to bring wireless vital signs monitoring to the rest of the patients in the hospital and the form factors required to do that are much closer to the type of wearables that would be suitable for the home. Now, up to today the focus is still largely on the hospitals but that kind of frames this opportunity which is for clinical-grade wearables to be used in the home for a large number of things.

So right here I kind of have focused on the chronic disease monitoring opportunity so ADI is going to get involved in developing products that will incorporate hardware, software, cloud analytics and will have as their primary function a service element to address the biggest problems today in chronic disease management.

That's quite a change for us but really it's a continuum of the moving up the stack that we've been embarked on for the last five to ten years. We're targeting our first product launch in 2021 and there will be a number of them to follow so there's many elements to this opportunity but the most interesting one or the most different one is this clinical wearable space.

Okay, so the other one that's brand-new for us is biosensing. In terms of technology it's not such a great leap for us. We've been working for some time on microfluidic capabilities as part of our more than more competencies in our internal wafer fabs. We several years ago - a good few years ago now we recognised that our internal fabs were of fantastic value to ADI if we could combine novel capabilities with their underlying CMOS processing capability and so we've been developing these more than more capabilities.

I think we've described them several times to you but really the way to think about it is adding on novel materials, novel capabilities like for example the ability to channel and sense fluid and doing that in combination with the underlying electronics that would do the sensing, measuring and actuating that combines those.

So that combination gives us a unique play in the biosensing arena. Our biosensing strategy is going after multiple segments from therapeutics - and a key application there would be home dialysis for example - in bioprocessing where the entire pharma industry is looking for better sensors for biobags and for the sealed processing environments that they operate in.

But just for today I'd like to talk about the other two so one is point-of-care diagnostics, the other one being synthetic biology just because they're so newsworthy really at the moment. So for point-of-care diagnostics where we're focusing is providing miniaturised diagnostic equipment so that would mean looking at ways to make sensing hand-held, to make it disposable, to combine the measurement and the sensing function together and to do that in form factors that are not possible today so we're only looking at disruptive technologies.

One example of that is that we have a partnership... Oh, and I forgot to mention that while we bring the sensing and measurement technology and the ability to handle fluidics the key piece of IP that's needed here comes from strategic partners, mostly biotech companies that have the materials understanding and the biochemical understanding to be able to provide us with the functionalisation of the precise materials required to make a sensor specific to the analytics that it's being aimed at.

One of the things is we're working with an early-stage biotech company called Pinpoint Science. Right now we're focused on developing a 30-second COVID-19 tests for the platform that we're developing with them and is not limited to COVID-19. COVID-19 is just one of the pathogens that the sensing platform will be able to detect and so whether it's successful or not with COVID-19 - it would be great if it is but we're not dependent on that; this isn't a hit or miss based on COVID-19 detection success.

It would just be great to provide a breakthrough capability which nobody can do today and if we can do that that's great but if we can't we will have a solution that will be suitable for sepsis detection or influenza or other viral targets in the future so that's one area.

The other area that's brand-new is in synthetic biology and so this is the market that is of great interest right now where several companies are working on synthesising long-chain DNA and ADI's role in this is providing - kind of similar to the point-of-care diagnostics space - providing the microfluidic or the nanosensing and control functionality combined with the measurement and actuation function.

The latter is very much in our wheelhouse; the former is the newer area which is this more-than-more capability that we've added. So we're partnered with a company in the UK called Evonetix and they are developing a desktop DNA writer which looks like it will be incredibly disruptive to the industry if it's successful and ADI provides the disposable module where the synthesis is performed and that is quite a sophisticated and high-value piece of the system that we are providing. That gives you an idea of two of the new biosensing areas.

So this whole strategy is - at least we've attempted to show what the dynamic look like on the left-hand side here in that it really is dependent on ADI working very closely, much more than we have in the past with research hospitals, with the expert doctors who are helping us with doing clinical trials and

consulting with us on some of the problems that need to be addressed and helping us to define and develop solutions for those.

We're working with brand-new customers for ADI such as the major insurance companies who are ultimately a lot of the payers for a lot of the disruptive technology and they are highly motivated to work with us because they are interested in any technology that provides the promise of lowering cost of care while improving the standard of care for their customers and between the insurance companies and population health organisations in general, both Medicare, Advantage and ACAs, we now have a situation where the goals are unambiguous; that people are looking for more effective solutions to the problems of the healthcare area.

So we're working closely with these research facilities, with physicians and doctors, with new customers, with our existing customers, figuring out how we can do more and really that's what's fuelling this revolution that we're engaged in again in our healthcare business.

Our leadership position has been well established in the sectors that we play in to date so we can unambiguously claim leadership in the most important segments of medical imaging, in clinical VSM and medical instrumentation, as I said at the outset, is more diverse in terms of customers and applications so that's more of a traditional play.

But really with the focus on customers where we're looking to further diversify our customer base and increase our SAM, forming deeper partnerships across the ecosystem, both increasing our established relationships as well as forging new ones, developing new content where now we've already made the transition from components to more highly integrated hardware offerings and subsystems and now we're getting into the arena where we're not only embedding software and algorithms; we're now adding software as a main feature of our product.

So, the whole idea of machine-learning-based analytics being embedded in a system that is ultimately a service mechanism is something that we're really focused on. Then as far as deploying this technology, we've seen that really technology is the solution to the woes of the healthcare industry, it has to be.

We're going to see continued decentralisation of care. Care is moving rapidly out to clinics and towards the home and technology has to provide that benefit and we're seeing the transition to population-based healthcare really create the environment to do that without any of the resistance that previously got in the way and it ultimately opens the door for companies like ADI to be new entrants in some of these spaces where we can provide an offering that is very disruptive and is being welcomed by these players.

So, we're really excited about this. We feel that we've done this once in terms of taking the first steps up the integration path and now we're embarked on this second series of steps and we expect that the result is going to be continued double-digit growth, high profitability and that the future looks very bright for the results of the investment we're making today and we plan on continuing to do that.

Mike Lucarelli: Thank you, Pat. Ross and Pat, I'll hand back to you to start the Q&A session.

Ross Seymore: Perfect. Thanks, Pat, for going through all that. Thanks, Mike. I guess first and foremost for people to have the perspective on this, a \$400 million business annually that's growing double-digits. There's a lot of other parts of even ADI but a lot of other companies that are significantly smaller than

that that get a lot more attention so thank you for going so in-depth on this, Pat. I guess if we take a little bit of a real-time question, all the slides that you said - I think for some obvious disclosure reasons - stopped at the end of Fiscal 2019 for you but since the end of Fiscal 2019, which is October of last year, until now obviously the world has changed significantly on then COVID side of things. So talk a little bit about what you've seen in your business during the last six to nine months, Pat, whether it's growth rates, engagement, however you would describe the activity in the more recent COVID-impacted time.

Pat O'Doherty: Sure, Ross, yes. Obviously over the last six months we've seen a significant increase in demand for our healthcare products. We were hit with a tidal wave of ASAP orders which came in for the large array of products that we provide to front-line equipment and that would be things like ventilators, patient monitors, infusion pumps, CT and digital X-ray systems and diagnostic testers. So, it was really across the whole range of equipment that has been used on the front line in the fight against COVID where globally we saw our customers being hit with emergency demand for that equipment.

So that was a big boost for us in the last two quarters. We're expecting that to tail off in the fourth quarter. It was always believed to be temporary. During the last six months, by the way, we made this our top priority in the company above all else, to service this demand and that wasn't for business reasons obviously – that was to help the world but we do see that demand subsiding.

With the diversified business we have the benefit of, during this period of enhanced demand for the COVID front-line equipment all the technology that we provide to traditional healthcare customers subsided so there was a swings-and-balances effect going on. The net result was very positive over the last two quarters. Nobody knows what the second wave is going to really look like, whether it's going to stimulate a second wave of COVID demand. I tend to think that people have their arms around the equipment inventory that's required but really we've talked to our largest customers and asked them and they are very clear in saying they don't know and so they similarly are saying, through this quarter we can see the demand, from here on in we don't know.

But I would expect that we will see a return to normality through next year and that means that the rest of our business - which is the largest part of our business - will rise up and see normal demand as the COVID demand continues to diminish. I hope that answers it, Ross.

Ross Seymore: Yes, it does.

Mike Lucarelli: Ross, I'll add on to what Pat said. It was intentional to end in Fiscal 2019 is what he said and if we put up what our 2020 numbers were everyone'd assume all of our demand and our growth relates to COVID and it's not the case and we proved that point by stopping at end 19 and that 10% CAGR was pre-COVID.

Ross Seymore: Great, thanks for the colour on that. Yes, I guess people are really just trying to judge whether the cyclical boost from COVID is going to create some difficult comps for next year but it sounds as if, from your side, there were portions of the business that actually decelerated during the COVID era and some of that other stuff will accelerate.

But I guess if we get back to more of the secular side of the equation, Pat, when you talk about the 10% CAGR over the last five years is that really you taking share, just the investments of the five years prior, how do you see that CAGR changing as you go forward?

So first, I guess, what drove it in aggregate - and I know you went through it in a bunch of slides but if you wanted to summarise it into share gains or just the focus of the company with the SAM growing - and then how do you see that CAGR changing as we go into the next five years?

Pat O'Doherty: Sure. Over the last five years I think it's pretty clear to us that there were two factors. One was SAM expansion. We were now offering products that incorporated precision optical sensing, which is something that we hadn't previously done and so that expanded our SAM quite dramatically and the optical piece then extended into vital signs monitoring products so it became a large part of the business.

So there was a SAM expansion element to it; previously ADI maybe would have taken the signals and dealt with the electrical signal processing and conversion only so we increased our appetite to go after the whole subsystem or the whole solution; that was one piece.

Then the other piece is that multiple that I was talking about earlier, that when you do provide these highly integrated systems that do provide critical end value as a system you gain share because you're keeping competitors out; it just isn't practical for a fight over each socket; it can't be done if you've got an offering that provides the whole solution.

So, both of those together fuelled our previous 10% CAGR that we saw. Going forward we're seeing an even bigger SAM expansion. I think SAM expansion is going to be the main driver now so as we move from hardware-based offerings only into hardware, software, analytics, service that is what is more than doubling our SAM in the future so we're going to see our future growth is going to be largely driven by SAM expansion and the emergence of some of these new markets like the emergence of a true clinical-grade, home-based, vital signs monitoring series of offerings not just from us but from lots of people.

That's going to be a major new market that's going to emerge and it's a SAM expansion elsewhere. It's being served by other people but not with the type of offerings that we're planning to provide so SAM expansion is going to be our future driver.

Ross Seymore: I know these two comments I'm about to say could overlap somewhat but when you talked about the SAM more than doubling from two billion to over five billion, you talked in one of your slides about 4x content opportunity for ADI - if you put all that together with the acceleration to the digitisation of the healthcare environment that COVID, I think, is driving is it a fair assumption to believe that your goal is that 10% CAGR should accelerate to something faster than that going forward?

Pat O'Doherty: Yes, it is, so, the number that we're targeting is several points higher than that, Ross, yes. That's been what we experienced in the past so we have the knowledge base of what that kind of transition is capable of providing but, as you say, all of the factors are more dramatic now so the markets that we're moving into are larger, the customers that we're talking to, the new customers that we're talking to are larger and the opportunities that we're discussing with our existing customers are larger.

So we see across our entire industry that more value is ascribed to software and service and we can see that the combination of a hardware foundation and those features is incredibly valuable and that's been confirmed by a lot of our customer interaction to date and it's also been confirmed by many of the clinical trials that we've been doing over the last three years.

Ross Seymore: When you talked about - you're in phase three now moving to more the hardware, software, analytic, service, etc. – when you combine that with the time to revenue in these markets because they tend to be more slow-moving in maybe a frustrating way to get the design win but in a very satisfying way; once you get it, it also doesn't go away very fast and it runs for many years.

So, if you combine those together, when you guys move to phase three when do you think that starts to be a tailwind actually to revenue of the company given that long time to money time frame for this industry?

Pat O'Doherty: Let me try and answer that by what we see today and then we can talk about what we might expect. Typically, today to get a new technology designed into some of these sophisticated systems takes one to two years. It takes a further five to seven years to hit peak revenue and then these are very sticky products because they're so critical to the system. They tend to have lifetimes of at least ten to 15 years and so we see a long tail in the business but, as you mentioned, it does take quite a bit of time to hit that peak revenue.

That's in the system-level and the integrated hardware products so now as we move into software and service-based products where we have a partner network, where we're doing elements of the service function where we're largely talking to brand-new customers like the major insurance payers and dealing directly with hospital networks.

There's an unknown factor to that in that I don't expect it to be that different, probably for different reasons though. I think the reason why it will take one to two years to get design-in will be more that clinical trial or at least sample trials will be required by some of these customers and that will have to be done and then the deals that we're discussing are very large and that's just a more sophisticated and complex process.

So, the time frame may end up being the same. I think the drivers for that time frame might change but I wouldn't expect... This isn't going to become anything like a consumer business where, okay, you have all the pieces and it's just a matter of signing up more customers.

What's consistent here is ADI is still going after the hard problems and we're going after chronic disease management and we're looking to really improve the level of care and reduce cost and reduce the burden on physicians and that is an involved, complex challenge that we're taking on.

It's not one that we're taking on this year. We've been working on this at this point for three years and feel that we understand it very well and that we've got great feedback from customers and from physicians and from our hospital partners but still I would say, my guess would be that we're going to have a similar dynamic.

Mike Lucarelli: Yes. I think, long story short, Ross, I would say, don't ask Pat next year or the year after that, why aren't you growing faster than 10%. Come back in three to five years and talk to us then about how our growth has changed and the trajectory has changed. Over the next couple of years it's curating new customers and coming to market with new products.

Ross Seymore: Yes, makes sense. One other aspect that makes this business potentially different would be the regulatory environment. I didn't see anything mentioned in your slides and maybe it's because it doesn't apply but given how deeply embedded you are into a lot of these medical devices and the

wearable side of the equation and the clinical basis, are there government regulatory approvals that are necessary, FDA approvals, etc, that slow down this process for all the right reasons?

Pat O'Doherty: Yes, there are and we all want that. As consumers of the healthcare industry we want that to continue and not be interfered with but yes, that's a really good example. I should have brought that up myself in the previous answer, Ross, I think, because that's an example of something that is in our new adoption process.

The shift is that it is now... I suppose the shift really is that the responsibility for submitting or acquiring FDA approval for many of these products - not all - shifts to ADI. That isn't an additional delay because today all our customers or most of our customers have to go through that process. It's just that ADI was sheltered from it; we provide the underlying technology; they get the FDA certification for the system.

What's changing is there's a handshake going on there with these offerings, where we're bringing the solution all the way to patients. Obviously, the burden of doing the FDA submission and getting the approval falls on ADI and so that's a new area for us and one that... we have brought on several partners who are very experienced in that area. We're not trying to do it ourselves but, you're right, we will be doing that and that is part of the ramp that we're going to experience.

Ross Seymore: You mentioned earlier about the technology side and what you could bring to market, some of the things you had partners for but from the sensing side, the processing side, the DDA side and of course all the traditional aspects of ADI do you have all the technology you need internally, Pat, or are there pieces of the puzzle that you think ADI needs to go and get either externally by partnering or externally by acquiring small or large companies to obtain the needed technology to get the whole-system solution that you're targeting?

Pat O'Doherty: Ross, the most critical piece that we need to acquire externally is basically the biochemistry understanding to be able to functionalise the sensors for example of the products that we're developing so that's where strategic partners are so important in these new areas for us.

ADI can provide the platforms to be able to handle the fluidic sensing, to be able to actually do the sensing and the signal processing and all that stuff of course but we don't have the expertise in-house to be able to create a targeted aptamer which is going to be enable a given pathogen to be detected so that we have not only a very sensitive but a very specific solution.

So today that's something that we're bringing in from the outside and in some cases we will be looking to acquire that but in others I'm perfectly comfortable with these strategic relationships. I think the world is changing to a partnering-based economy where it's very rare for companies who are aggressive in moving into new markets to have all the pieces necessary or to be able to acquire them all.

So an ability to be able to develop strategic partnerships that are win-win is critical and I think that's going to be a key part of what we do going forward and with the upcoming Maxim deal that gives us a whole new set of capabilities that are particularly strong in the wearable space and with the sensors that go along with that and that adds capabilities to us that we're really looking forward to combine with what we've developed ourselves.

Ross Seymore: I want to pivot over to the margin side of things. You mentioned that this business in general is above the corporate average on the gross margin side of things. I just wondered, how is that

profitability in aggregate changing at all as you move from, I guess, what you would call phase one to phase three, from components to subsystems and eventually to complete systems. Does it change substantially in that evolution?

Pat O'Doherty: If I could break that down instead of going from phase one to phase three and say, what do we experience from phase one to phase two; as we made a significant part of the business modules and subsystems what happened to our margins? That was one of the marching orders that we provided to the business, that we were only going to get involved in more highly integrated products where we can by doing so add significant end system value and if we can add value to our customers the theory was that we can capture value and therefore maintain margin.

That's proved to be true so our integrated products portion of the business yields roughly the same margins as our component-based business. The one difference might be - just full disclosure - that the medical instrumentation sector of the business, which is a long-tail portion, is a fragmented business with many customers, many products and in those circumstances you tend to get slightly higher margins but really it's not that significant and all portions of our business - medical imaging, vital signs monitoring and medical instrumentation, yield above ADI average gross margin so that has proven to hold up, that value proposition.

As we move into these new products that I'm talking about - and remember, this more extreme end includes software as a service and cloud-based analytics so we have products coming that involve various pieces of that with embedded algorithms for example or software functionality that may be embedded in another system.

But if we take the ones that are the most aggressive, which will be basically SAS-based products, we would expect software-based margins for that business and nothing in the discussions that we've had with customers to date would say that that should be different. Basically, the products offer the potential of major cost savings in the system while improving care and that is a very strong argument and should be held up by our ability to capture that value.

Ross Seymore: So would you say - I think it's on slide number 4 you have the \$2 billion core SAM going to a \$5 billion emerging SAM. That incremental \$3 billion as you get into chronic disease management, remote patient monitoring and biosensing; layering on top of that the phase one to phase three you talked about; if we put all that together would you say that incremental \$3 billion has equal, lesser or greater profitability potential from a margin perspective than the original \$2 billion SAM?

Pat O'Doherty: The largest increase in that SAM expansion of going from \$2 to \$5 billion is in this medical products/chronic disease management area and that's the area that will command software-type margins so I would expect margins to increase as we experience the increased revenue from that portion of the business and the others should be the same as our existing business.

There's no area that we're getting into that is value-challenged or hyper-competitive, from what I can see today. They will all involve competitors but they bring a lot of value to customers and wherever we're able to do that there's no reason why we can't get appropriate margins for that.

But I think the biggest factor in the answer probably is the more of our growth that will come from chronic disease management-type products the more that we will expect software-type margins from that business so that means an increase in margins from our healthcare business overall.

Ross Seymore: Last question on margins for you, Pat; all the gross margin colour's very helpful but in an emerging market like this obviously there're investment waves that come well before the revenue side, as we've discussed already. How do you think about the operating margin side of things, is that above or below the corporate average and how does that go into your investment decision when you're deciding to enter some of these new markets?

Pat O'Doherty: We're spending more at the moment but this is our second increase in R&D spend. Through the first period opex was not challenged. The spend is large but it isn't enough to really have an impact on the opex. I think operating margins from this business will stay where they are, which is above the corporate average.

The amount by which they're above that corporate average during the high investment increase before we start to see the revenue will obviously vary a little bit but the business today yields above-average operating margins and once we see there's a revenue kicking in from these new initiatives we will see that continue to be the case, I think.

Mike Lucarelli: Yes. Also looking at it on the corporate side we are increasing our investment in healthcare but it's more about pivoting R&D across the company and organisation, putting more towards healthcare where we're taking it down in some other areas so net-net overall R&D won't change much. It's more about where we allocate those R&D dollars.

Ross Seymore: Perfect. Thanks for that colour. I guess, a couple of final questions as we approach the top of the hour here. On the competition side of things, Pat, you've alluded to it a little bit but how do you see the competitive environment? The attraction of this market is no secret and I think the attraction has probably grown over the last six months during the COVID pandemic but the capabilities and the commitment entering it are long-term decisions to be made and you guys have been doing it for the better part of a decade at least already.

So how are you seeing the competitive environment and how much is it price versus performance-driven when your customers make their decisions on who gets designed in?

Pat O'Doherty: First of all on the competition, our existing business today - so largely hardware-dominated but a combination of component and these modules and subsystems. Healthcare is not really different from our other businesses in that TI is a major competitor across the areas that we play in.

But when we start getting into these modules and more highly integrated products that's where our competitors change and it becomes folks like AMS, Hamamatsu, people who maybe are more - at least the way we would view them - niche providers. That's maybe not fair on them but maybe where their capability is based more on the photonics or the optical side of things.

So, we've different competitors in different spaces for different phases of our business. As we move forward into the home-based care area that's where the players that are out there today are all small and emerging customers. They're highly valued, some of them, but they are recent entrants who are providing offerings that are maybe more rudimentary than what we're foreseeing.

But they are aggressively establishing a position and they will be our competitors going forward and the competitive dynamics will change from what's the functionality of your system versus someone else's to

also taking in ease of use, ease of integration into the electronic health record system, all those kind of things.

So the competitive dynamic is going to change but I don't see a lot of established players going after this space that we're going after right now. A lot of people who have the capabilities are focused on their existing market. That will change of course but right now it's part of the reason why we're so excited about the move that we're making.

Can you remind me of the other part of your question, Ross?

Ross Seymore: It was just performance versus price; how much price competition goes into this equation.

Pat O'Doherty: Yes. In all of the areas of healthcare performance is key and really that's why the fit with what ADI does is so good so performance is always number one but it's never performance or price; it's always performance and price. We're not exempt from the economic pressures and the competitive pressures that exist.

The way we look at it is system value so if what we're developing provides differentiated functionality and a significant value to our customers then that's the performance piece taken care of. After that it's got to be provided at a price that's rational but performance leads with all of the segments, particularly in the clinical space, which is all of the business that we're talking about today.

The only one where that dynamic changes is in the wearable/consumer part of the healthcare business and that's not reported in our external healthcare revenue but it is business that's supported by the healthcare BU because the functions are healthcare functions and that's where it's a little different but for the most part performance rules.

Ross Seymore: For my final question in the two minutes we have left - whether this one's for you, Pat, or you, Mike, or both - I think about a year ago, almost exactly a year ago this business became a stand-alone division of ADI, you report directly to the CEO and so that tends to show the commitment that the company has to any given business.

But given the size of this business, the commitment, the stand-alone BU status of it, when would you think this would be a business that you might externally report just as you do industrial in aggregate now, automotive, comms, etc? Is that something that you would even consider?

Mike Lucarelli: Yes, thanks, Ross. I'll field that one. Good question. Yes, it's definitely something we would consider and I think we're starting to see the first steps of that. We used to report within industrial; now it's part of the fabric. Pat reports directly to Ben; that's step one.

Right now, it's \$400 million or so of sales and growing nicely or seven or 8% of total sales. It's kind of a bogey to get that above 10% of total sales, which would be the hurdle to break it out but I think our long-term ambition would be to break it out because it's a much different business than industrial, as outlined today and different growth drivers and a hidden gem within ADI.

Ross Seymore: Yes, I agree. I think you can get some credit. As you said, Pat, some of those emerging companies are valued quite highly for targeting these markets so giving people a little bit more of an

understanding of how you guys play into it seems as if it could help on the valuation front if nothing else for you as well.

Guys, we're exactly at the top of the hour so thank you so much for going through all these details. Pat, thanks for your time, Mike as well. Mike, as you said, for the investors on the call the slide deck will be posted on ADI's website, I believe, momentarily for those of you who wanted to take a look at that.

If you have any follow-up questions I'm sure Mike is available or you can always reach out to me, ross.seymore@db.com or just give me a call. Pat and Mike, we'll wrap it up there. Thank you so much for your time and for describing this exciting business.

Pat O'Doherty: Thank you, Ross, and thank you, everyone else, for your attention today.

Mike Lucarelli: Thank you.

[End of Session]