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CORPORATE PARTICIPANTS

Charlotte Knudsen *Idex ASA - Director of IR and Communication*

Hemant Mardia *Idex ASA - CEO and MD*

Henrik Knudtzon *Idex ASA - CFO*

Morten Opstad *Idex ASA - Chairman*

Stanley A. Swearingen *Idex ASA - Chief Products Officer*

CONFERENCE CALL PARTICIPANTS

Christer Roth *DNB Markets, Research Division - Analyst*

Fredrik Steinslien *Pareto Securities, Research Division - Analyst*

PRESENTATION

Morten Opstad - *Idex ASA - Chairman*

Welcome to this fourth quarter presentation from IDEX. My name is Morten Opstad, and I'm the Chairman of the Board of IDEX. I'm opening this presentation as a follow-up to the stock exchange announcement yesterday evening whereby we announced that IDEX Board of Directors had appointed Stan Swearingen as CEO effective from 1st of April 2018.

When IDEX' existing CEO, Dr. Hemant Mardia, was appointed the CEO in 2013, we knew that this was for a period of 4 to 5 years. We could, therefore, plan for his succession and after assessing both external and internal candidates, it became apparent that Stan Swearingen was the logical choice to succeed Hemant.

I want to thank Hemant for his dedication to IDEX and for his contributions, taking IDEX significant steps forward to market penetration. When stepping down on 31st of March, I am pleased that Hemant has accepted to continue being part of IDEX by joining our Strategy Advisory Council.

Stan Swearingen is today Chief Products Officer of IDEX and has been a key part of IDEX' executive team for the last 18 months. Prior to joining IDEX, Stan was Chief Technology Officer at Atmel Corporation, and he has also served as Chief Technology Officer for Synaptics and has been responsible for their biometric product division. And he has also been part of the team acquiring Validity. A warm welcome to Stan in his new role of IDEX.

I will now hand over to Stan, who will say a few more words, representing himself and his visions. And after that, Hemant will present the Q4 together with our CEO (sic) [CFO], Henrik Knudtzon. So welcome, Stan.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

Thank you, Morten. Good morning, everybody. So I'm excited by my new role, but I wanted to start by thanking and acknowledging Hemant's contributions to the company. I think he has done a phenomenal job preparing the company for an amazing phase.

So my -- a little bit about my background. I was in the Silicon Valley before joining IDEX. And I had hybrid roles, where I was the Chief Technology Officer and General Manager for some pretty significant businesses, and those businesses were primarily in the mobile space. So my experience set, really, my sweet spot, if you will, is taking businesses that are just in the phase that IDEX is in, which is in the early phase of commercialization through mass volume ramp.

As a point of perspective, the products I've worked on have shipped in the past, let's say, 7 years over a billion units. And so high-volume production as well as the commercial relationships and all the things you need to do to be successful in a demanding market is kind of where I spent my last few decades of my career.

And with that being said, I think when I came to IDEX, I started to work with Hemant, primarily on strategy to begin with, and then worked very closely with Hemant to build a world-class engineering organization. And I'm quite proud of where we are today with that team and what we've been able to achieve from a technology perspective.

With that being said, I was very intimately involved with the strategy and the creation of strategy. So I don't foresee any changes in strategy. We had announced we are focused on cards, and that's first and foremost the market we're going to capitalize on. However, as we mentioned at Capital Markets Day, we will reenter mobile but we'll do it in a very thoughtful and disruptive way.

So what attracted me to IDEX? I really believe and what I'm passionate about is building great businesses and returning outstanding shareholder value. So that's my scorecard.

And how do you build an outstanding business? You have to have great technology, you have to have great partner relationships and customer relationships, and you have to have a great team that executes flawlessly. And so when I saw what IDEX under Hemant's leadership had assembled, I felt that technology was differentiated and exceptional for the application of cards. I saw the relationship with Mastercard as a market maker, and so I felt really excited about that. Then the card market to me was just so obvious that biometrics applied to payment cards and identity cards was a natural fit. So I saw the perfect alignment of all the things that I've seen in my career that generate outstanding businesses.

The other thing I saw, having been a veteran of mobile, mobile you have to rewin your business every year. So it's a very challenging market where having to rewin your business every year, and you've seen that from some of the recent announcements in that space versus the card market is much more analogous to automotive or almost an annuity-like attribute, where once you win your business through certifications and all the things you have to overcome, it creates a significant barrier to entry for competitors.

So I'm excited about the space, I'm excited about the company, and I'm honored to have the opportunity to lead the company in such an exciting time in its evolution.

So with that, I'll turn it over to Hemant.

Hemant Mardia - *Idex ASA - CEO and MD*

So thank you, Morten, and thank you, Stan. Just -- first of all, a few words before I go into our Q4 presentation.

As Morten noted, when I came to IDEX, my vision was really to take IDEX as a small IP organization to become a leading international products business. And here we are today, I think, with a threshold of achieving significant scale of business in a leading position in the smartcards. And the goal was really to create the best off-chip capacitive technology for fingerprint, and by doing that we are positioned now ahead of any competition in this space.

In terms of this timing for me, this is a perfect time for transition to a new CEO. Stan has impeccable record of taking technology into very large scale, very fast ramp business. And to be able to do that and execute at really world-class levels with the kind of partners that we have like Mastercard, IDEMIA, who are used to unit numbers in the billions, we have to have a very robust organization. And I'm really super proud of the fact that we have a team that we've assembled who have done this before multiple times.

So where we sit today, with over 120 staff within the organization who have been in high-volume consumer businesses. And in the beginning of true commercialization of smartcard market, we've gone through a technology phase, and now we're seeing a significant commercial activity and commercial bids, which I'll talk about. So I'm very pleased that Stan joined me 18 months ago with the vision to create this very high-volume strategy, to put in the right organization structure and to focus our energies on being a solution provider. And that's where IDEX, I think, has become

a different type of company. By being a solution provider, we have the ability to create very high barriers to entry, but also to create very high-value, high-margin business. And I think that is about to unfold. It's a really exciting phase for IDEX, and I'm very happy that we have someone of the caliber of Stan in the company that can take the company forward.

So from my perspective, I just like to also, just briefly very -- thank the board, the executive team, our staff and our fantastic customers and partners, and particularly, the investors in IDEX. I know I've had a 5-year journey, but some of our investors had a much longer journey in IDEX. But this is really the moment for IDEX, I would truly believe that. And I'd like to make a really special thanks to Morten, who asked me to join those number of years ago. It's been a real privilege and an opportunity for me to take something which has been a very special technology and take it to this level.

And I'd also like to thank a couple of people, first of all, Fred Benkley, who is our CTO, who was the founder of Validity and great connections here with Stan, who acquired that business and supplied into Samsung. So we can see the recipe that was successful there, a true innovator in the field. And this is why IDEX has now come to a point where we have such deep partnerships with people like Mastercard. They value our ability to solve very difficult challenges to create scalable solutions.

And I'd also like to thank Henrik Knudtzon, who's been a fantastic CFO and a really great support that he's given to me.

I'm very happy also then to continue to help IDEX on the Strategy Advisory Council to help Stan as it moves through this phase. And I think 2018 year is going to be a very exciting year. Even in the next few months, there's going to be some real great progress.

So with that, I'd just like to run through why I believe we are on the cusp now of mass commercialization. Why IDEX has got to the point of building all the foundations necessary to make this into a very large-volume, large-scale business.

There are really 3 parts to this. The first is when you're in a new market, you have to create the ecosystem. And the card ecosystem is very complex. And by partnering with Mastercard, we have a catalyst that has being creating the drive to put together the system necessary to deploy biometric cards in huge volume. And their ambition is really to take massive market share. So this is something where IDEX has aligned with a company that is literally the market maker.

So I'm going to go through the ecosystem, the work that we've been doing to generate the right solution to get cards at the right cost in the market.

Secondly, we've developed a lot of new technology, and that technology is solving special problems that will allow cards, biometric cards, to become something that everyday consumers can work with. And I think people at IDEX should be very proud of how we've been able to do that.

And then thirdly, most importantly, it's okay, we now are about to shift into high-volume ramp. And that's obviously dictated by big players like Mastercard, by big issuing banks, by IDEMIA. We've played a major part in that in commercializing our products. And I want to go through the commercial milestones, what are the timing points and how they lead then to the next step of orders and revenues, which is where IDEX is now. This is the key thing, it's to win business and deliver it. And Stan will be instrumental in driving this with our partners to make sure that we get the value that the shareholders will be able to realize.

So just bring your attention to the disclaimer and the risk statement.

So if we, first of all, just start at high level. I think it almost goes now without saying that the demand for biometrics and biometric cards, you don't have to explain what a biometric card is, everybody gets it. It eliminates the PIN and password, it gives you identity, so not only for payment or for any other application where you can conveniently use your identity to provide authenticated access and security, and we all want convenience and security.

The positive thing for us is that we've seen this huge adoption of fingerprint in smartphones. So as consumers, everybody is familiar with using biometrics.

Within the card space what that generates for consumers is a real pull. Everybody thinks, yes, when can I get this. This offers not just a convenience but also additional security. When you do a contact with transaction, it doesn't actually use the chip and PIN. You don't enter the PIN number. So therefore, you have low transaction limits. With the biometric, you completely unleash that opportunity to raise the transaction limit and address the security. So this has huge value to banks and to individuals. And we're seeing just unprecedented demand from issuers saying that we want an innovative product because it's in their interest to retain consumers but also to attract new consumers. And a product like this addresses that. It addresses fraud, but also there's a lot of new regulations that are coming in literally this year, there is the general data privacy regulations, there's PSD, which demands 2 forms of authentication so that we can all feel more secure.

So this biometric card, where you keep your fingerprint and identity, the template within the card, it never goes anywhere, so it's extremely secure.

And if we look at the potential size of this market, it was actually more than double the size of mobile. Today, we are in the numbers of 4 billion smartcards. So it's a huge potential market, and IDEX has really set out to be able to be the first mover to exploit this market.

And if we look at the market, it's not only the payment, but it's also the fact that you got identity. So you can look at not just the banking market but also other verticals, like access control. Identity is a big opportunity but also things like health care and social security. And as we are seeing with one of our customers, loyalty schemes is also another opportunity. So anytime you got a form factor, our solution opens up a market vertical. So we're interested in really having a diversified business across different verticals.

And today the opportunity size is large, but it's the beginning of creating this penetration and adoption of smartcards. And we have been working with the pioneer, Mastercard, who are driving this biometric card adoption. So when we look at this opportunity of 4 billion units to make that happen, we have a big player in Mastercard who have global reach and have significant investments and commitment from the CEO to make this happen. And we've been working with the Mastercard for 3 years, and our relationship has gone from strength to strength. They unveiled the biometric card in April last year, they did a very major launch. And since then, they've moved from what they call technology phase to commercial deployment. So this year, they had a major launch, where biometric cards is in commercial phase this year for Mastercard, and we're the sensor provider for these solutions.

And last year, we had 3 end-customer trials completed. So this product has been used in real world and that's given us great learning, which we've used to improve the product and get it ready for certification which is about to complete.

And what is interesting now is that with Mastercard as a first mover, we're now seeing other entrants following. And Visa recently have announced some early pilots. And if we look at those pilots, they are effectively the same thing that we did at the beginning of 2016. So almost 18 months to 2 years ago, we were at that phase. So I think we can demonstrate that IDEX and with our partners are significantly ahead in terms of getting ready for mass deployment.

Within the card market, the way the market works, I just wanted to sort of illustrate how this -- how we actually get the economic sales for IDEX. What we have is Mastercard, our payment scheme. So they have that brand, they have thousands of banks that they work with. So they promote this as a way of driving their own market share increase, and they are looking for massive market share increase. So that pull and that drive is something that IDEX is benefiting from.

So we're partnered right now, we're the first movers, with IDEX and IDEMIA, we've announced those. There's a number of partners that we haven't announced. So on this list, we're working with pretty much everybody on this list, and we'll continue to develop with the large players. And our focus is really Tier 1s. We want to go focus our energy and our resources on the companies that have significant volume and are committed to this market.

So within this space, we have suppliers like the secure element providers, we have companies who create the inlays that are necessary to create a smartcard. And then we have the card integrators who are the companies who issue -- who provide the cards and distribution and personalization to the issuers. So our path to market is to sell through companies, like IDEMIA, who've done work with the end customers.

And what's very interesting is to contrast this market with the mobile market because we've seen what's happened in the mobile market. It's become fiercely commoditized. And for IDEX we made a strategic choice. Having started the smartcard penetration 3 years ago, we were in a great position to focus our energies on this market as it's now moving into a real step change. And I think this market has just fantastic and attractive market dynamics for a company like IDEX.

First of all, it's very consolidated. If you look at the top-5 players account for 50% market share. Secondly, it's very European-dominated, the type of companies, IDEMIA, Gemalto, G&D based in France, Germany, these companies have dominated this market for tens of years. Why is that? It's a very sticky high barrier to entry market because unlike mobile, security, standards and certification are absolutely essential. That's why it's taken a lot of efforts and investments to get to this point. But having done that, we are significantly distanced from anyone. It's not easy for anyone to come in and offer a competing solution at a slightly lower price. They won't be able to meet all of these standards without passing through. And as we see this ecosystem, we've targeted the leading integrators and we're working with multiple here.

So from the market-creation side, the ecosystem, I think we are really advanced. And now if I turn to how we are enabling our technology to be inserted into these smartcards, we focused very much on taking our off-chip technology and applying it. The fit to smartcards is really, we think, ideal. Off-chip is just could've been designed perfectly for this market. Our off-chip sensors are highly patented and protected. And in this market being a European-centric, a high-security market, patents and IP are absolutely a key ingredient in making sure that companies are comfortable with working with you because the investments in qualification are so intense.

And now really 3 things on our off-chip technology. One is our silicon is tiny, less than 13 square millimeters, which gives us a great cost advantage. The sensor itself is made out of polymer, so it's flexible, which you need to be durable. And the power is extremely low. And we've taken that to another level, and Stan and his team have done a fantastic job to take our off-chip technology to a point where we need no special components, no battery to make smartcard operation work with NFC.

We actually have -- we have our own matcher, which is really optimized for cards. And it gives a single-digit false reject, which means that you get reliable transactions. And very importantly, the design of our sensor is adapted to work with standard, high-volume production. You could see that our customers are making billion cards per annum. They have very specialized lines and our sensor works with those lines for most manufacturer.

And right now we've built a really world-class team. We have system-level engineering capabilities, I think, second to none. And that allows us to work well with all of these different card integrators in different parts of the ecosystem to give absolutely optimized solution at the optimized cost.

And right now what we've been doing is building out the sales and marketing team, bringing in people from the card ecosystem who know how to take our products to market.

Just very briefly on off-chip. We believe image size matters. In a card, you don't have a display, you don't have high compute power. So we think image size absolutely matters. And what we've done is focus not just on the sensor but a total solution. What will it take for our customers and for Mastercard to have a product that deploys end to end. And that really means 2 things. One is you don't just solve the transaction, the match, but you also have to solve enrollment. And our team of innovators have created something which is absolutely game-changing, where you can enroll yourself on a card that comes through the post. That's essential for banks. Because without that, they can't use their standard ways of getting to the consumer. But with it, it opens up that whole customer base. So this is really a significant advance, and it uses our own matcher technology. We've got significant patent applications behind this, and this is driving incredible customer response. So this solves, really, the issue of you don't have to go into a branch. You can do that for more secure applications. But this is something now that you can do at low cost and very easily. And again, having a large sensor is really important because you want a great enrollment experience. You don't want to touch it lots of times, you don't get guidance like you do on a mobile. So we can do that all with really super low cost, very simple solution.

So I'm going to now just talk about the milestones that we've progressed through and how that translates then to the next phase, which is orders from our customers, which are the card integrators, and for them, orders from the issuers and the institutions. And I think this is a great illustration of the steps that you have to go through to get to deployment. We started, first of all, with taking our technology and creating a custom sensor that worked in a thin form-factor credit card, the standard credit card. That product has gone through extensive testing because it has to work in the card, it has to pass all the bending tests, all the durability. And importantly, it has to work with a consumer in a standard terminal. And we have

run through, you could see we've gone through, first of all, multiple successful pilots at Mastercard. That was important because we got lot of feedback that helped us. As they used it in cafeteria, people were paying to get that lunch. And they were quite important transaction for them, it had to work. So we got great learning of real-world experience. And I think that learning is something that is very virtuous to IDEX because we have that sort of experience ahead of any of the competition.

That then translated into end-customer trials. There were 3 trials that have been announced so far, Pick n Pay, Absa Bank in South Africa, and UniCredit Bulbank. Those trials were very key landmark milestones because this was Mastercard going through some of their big customers and saying, okay, we believe this technology is going to fly. And right now, there are multiple other trials that have already started, and I'll talk a little bit about that.

So from the end-customer trials, because of the results that were gathered, and particularly the UniCredit Bulbank, a lot of metrics were gathered and the product then went into a freeze process. So we take the design that we have for our sensor. IDEMIA took the card, and we now have gone through extensive qualification and certification. And a certification like this is something that involves lots of different parties, lots of standards bodies, third parties. We are very well progressed. And we're just about to complete, in fact, so I'm very pleased that we're at this stage. And by early Q2, we expect to be finished with the certification, have a certified product that is issued into the market.

So this whole process, you can see, was in the first phase for us about 2 years. But having gone through that, we now have everything set up. And that means for the next product, which is coming up behind it, which is contactless, that was the contact-based product, we do see a very good demand for contact, but contactless is really where it opens up everything. So contactless has been a very key strategy for us and a key goal. And the fact that the technology now is proven, we're working with multiple NFC terminals, we've got very strong proof points, we're working with multiple card integrators who are taking the product. We are now passing through the same sequence of events. Proof of concept will happen in Q2, and we'll then optimize the solution, tune it to get the best possible user experience, go into end-customer trials and then certification. And this process will be faster than the process for this contact because of all of the groundwork that has already been done. It gives a very straight lead in for this product.

So turning that into the specific commercial milestones and opportunities. We now have the ecosystem is set up between IDEMIA, IDEX and Mastercard. It's an end-to-end ecosystem, including enrollment, including all the security certifications. We are -- we announced that we're working now with IDEMIA. I'm very proud that they've selected us for their contactless program or dual interface, meaning it will do both contact and contactless, which is why the contact experience that we have is so valuable. And the Mastercard have started a broad sales promotion. So this now in January, they started to say they're now going out to their issuing banks and saying, this is a product we stand behind. We see great revenue creation from this. You can drive a lot of transactions, and it will be something that differentiates you. So this is now in mainstream for Mastercard. This is what they call commercial phase. And we've just visited so we know that they have really good commits.

In terms of customer trials, for the contact product, they have 6 customers already in trials, not just signed up, they are in trials now. And these trials are real customers, i.e., consumers of those, not just friends, family, et cetera. This is -- they're putting it out into the wild as it were. So this is the fact that they're 6 in parallel already in place, and we expect the results of those to happen next quarter. So you'll see, I think, a number of announcements as those complete.

On the contactless, which is going through the integration phase, they already have 3 major customers in APAC signed up for the trial phase. So they want to be early adopters, they want to lead. So that's a tremendous validation of this program. And we are actually not in just engagement phase, but we actually are in bid phase. So there are live bids where there are requests for proposals and quotes, which have already started in parallel with certification because the confidence in certification was so high. So we are actually bidding for volumes together with IDEMIA. So this is really why we're very confident that this is shifting into revenue generation and orders.

If we look at the opportunity much broader, Mastercard are clearly a massive mover. That's really for them focused on payment and also things like social inclusion where you combine social security or identity with payment. We want to create many channels to market because we want to accelerate our leadership in this business. And we have made really great strides in that. We've got lot of activity in Asia. We started sampling in the second half of last year, and those sampling has increased now to all the major, or I'd say, most of the major ecosystem players. We've got a very seasoned team who know how this ecosystem works in cards. So we've targeted some of the big players both in Korea, Taiwan but also in

China, where the main smartcard developments have been going. And these companies are typically been looking for biometric card solution. The main breakthrough that we are offering is something that for the first time is scalable at low cost. There's lots of biometric cards that have been made which are very complicated. They have lots of components and very complex manufacturing. Ours is seamless manufacturing with very simplified integration.

So we're working with actually 6 of the larger card vendors already, so that's tremendous progress. And we're working with the secure element providers because that's the key to generating a biometric card, you have to work with the existing security elements. And we're working with the leading packaging guys, the people who can take our technology and make it easy for a card customer, who's got a volume play, to actually take our card and scale it into mass manufacturing. So our team is basically focused on expediting our go to market. Everything that we have pioneered on the Mastercard program puts us ahead in this Asian market space.

And our dual interface is now being integrated. So we have created what we call a reference design. So we've taken our sensor and said, this is how it works in an NFC field with no battery, with no special components. And we've taken our power consumption to a point which is -- which gives significant headroom to our customers. And this is now, I think, probably at best in class.

We announced, and particularly one of the companies, not all of the companies that we're working, a company called Feitian, who are a leader in security in tokens and smartcards and a very fast operator. And I think it just gives a good reference point because we started sampling in Q3 of last year and already they've produced the first cards. They're going to take those cards to customers, and the way the Asian market works is they sample with cards and the customer demand is created. And it's a much shorter route, it doesn't have the same certification requirements that we see for the payment schemes. And the use cases are very broad. We're seeing all kinds of use cases. Government ID, of course, access control, but also health care and other volume applications. So we see this as a very complementary but also very fast route to market. So we can expect to materialize orders in this area in 2018.

So to conclude on how the team sees the outlook, as Stan said, Stan's strategy is to continue, for IDEX, priority one is to be the leader in smartcards and that's our focus and our energy of the team. And we're now looking at the commercial rollout phase. Certification, process completing for the contact product, that's a big milestone in Q2. The trials that are ongoing will become announced in the first half. There's going to be a significant step-up of commercial engagement and we have bids. We have bids for volumes and prices to end customers that are now expected to generate capital commitment from issuers who are very excited to deploy this.

The contactless is moving really quickly, that's being expedited, it's a real priority. And this remote enrollment solution is a cornerstone. It's allowing banks to say, this is a product we can deploy really quickly, because, remember, the card itself already works with standard infrastructure. You can take a biometric card and you could use it anywhere in the world. There's no change to the POS terminals, it works with every current terminal that operates with either contact or contactless.

And we're expanding the ecosystems. So we've made a specific plan to target the large ecosystem players, both actually in Europe but also in Asia, and we're getting very good traction. We are seeing validation that our technology suits mass manufacture. And we expect both of these tracks to lead to orders this year.

So with that, I'm going to pass on to Henrik to take you through the financials.

Henrik Knudtzon - *Idex ASA - CFO*

Thank you, Hemant. Well, first, I just want to take the opportunity to thank Hemant for his leadership and for transforming IDEX from the company it was when he started into the company which is ready to take a dominant market share in biometric card market. Thank you, Hemant.

And now let me take you through the financials for the fourth quarter. In the fourth quarter, we had revenues of NOK 2.5 million. And our revenues obviously reflect the shift we're doing from mobile to cards, which is a market which it's ramping up today.

In the quarter, we also had large degree of service sales from our -- from the innovation agreement we have with our global payment provider partner. This revenue is reflected in the gross margin, which is fairly high for the quarter, about 50%. The service sale is at 100% gross margin. So -- and the product sales in the quarter had a margin of about 5% due to some inventory adjustments for the year.

If you have a look at our OpEx, it was about NOK 59 million for the quarter. The majority of our costs are payroll. And if you look at the payroll, excluding the share-based remuneration, it was NOK 31 million. That's a reduction from the previous quarter. We have done some restructuring following the shift towards biometric cards. And also in the quarter, we had an effect of reversal of bonus accruals given that we didn't achieve our targets for 2017.

Our development costs, about NOK 9 million. Underlying, we expect the development costs to decrease as we are doing more of the development in-house, which are payroll costs. Development costs in the accounts are external costs.

In the fourth quarter, we also had this (inaudible) effect, the government grant, which is netted off in the quarter.

Lastly, we have the other OpEx. It was fairly high in this quarter due to some extraordinary effects. The majority of additional costs compared to the average level for the year were linked to write-off of inventory, mobile inventory. So that's also part of the strategic shift we are doing.

IDEX has a very solid financial position. We have a cash balance of NOK 302 million as of the end of Q4, and there's no financial debt. We also expect the OpEx to reduce in 2018 compared to the 2017 level due to the fact that we are doing more of the development in-house. And also from a headcount perspective, we're at capacity for where we need to be now. And that means, if you just -- if you look at the cash balance and expected OpEx, we have cost coverage for 5 to 6 quarters.

So with that, I will open up for Q&A.

QUESTIONS AND ANSWERS

Henrik Knudtzon - *Idex ASA - CFO*

That was quick.

Christer Roth - *DNB Markets, Research Division - Analyst*

Christer from DNB. I was just thinking, could you first touch upon -- it seems like there's been a delay in the certification process on the smartcard size. Can you just touch upon what has happened there. And then on the commercial rollout, you're now talking about commercial biddings kind of just rollout, is there any change here? Or was this something that you were expecting all along?

Hemant Mardia - *Idex ASA - CEO and MD*

So first of all, on certification, I think it's broadly on track. Certification, this is the first time a biometric card is being certified. So there has been some new standards created and some new tests, and we've needed to go through that. So clearly, the certification is done by our partners, IDEMIA and Mastercard. So I think broadly, it's on track, but I think it probably has taken some extra weeks. But I think in the overall shape, it's still the same. So nothing major that was changed, it's just the fact that there has been additional work that needed to be done and some new biometric tests have been created.

On the commercial phase, I think we'd said that we expected commercial bids and activity to happen in parallel with certification, and that's what we're seeing. So I think we're very pleased that, that is the way it's rolling, that the certification phase is moving but also the commercial activity has started.

Christer Roth - *DNB Markets, Research Division - Analyst*

In those bids, is it IDEMIA and you -- are you the only one that IDEMIA are working for -- with, for that bid? Or they're working with multiple vendors? And also how many other players are in that -- these kind of bidding processes? Is it Gemalto or is there anyone else who can go through that?

Hemant Mardia - *Idex ASA - CEO and MD*

So, no. This is just -- this is a very specific bid, so we are one of one.

Christer Roth - *DNB Markets, Research Division - Analyst*

Great. And then lastly, on the certification process. Now that you've gone through such an extensive process with these major players, does that make it a lot easier when you go to maybe the next card scheme or the next card integrator, et cetera? Would that kind of shorten the lead time there significantly?

Hemant Mardia - *Idex ASA - CEO and MD*

Absolutely. Exactly correct. We -- the experience that we've gained is all fed back in. So all our products are actually being -- have been refined, updated, but also the process is now known. And this process is something that unless you're inside the program, you don't have access to even the information. So this really puts us in an accelerated path, both because we have that experience but also we have taken that experience and applied it back to the product.

Christer Roth - *DNB Markets, Research Division - Analyst*

On the proof of concept of your contactless card, does that mean that it is ready for mass production? Or does that mean that you have to do the proof of concept? And -- or...

Hemant Mardia - *Idex ASA - CEO and MD*

Well, if we look at those 2 levels, and Stan, also feel free to answer, but there are 2 levels. So our sensor are -- we have sensors which are released and ready for mass production. So we've been doing all the qualification work for our sensor level. The proof of concept is to take those sensors and put them into real cards, and these cards are architected to be the right product for mass production at the right cost. So that is the phase we're now going through is we're working with a few different card integrators, particularly IDEMIA, where they're taking our sensor and putting it into their card structure with their software and their security. That's what's necessary then to do a proof, because when we talk of proof of concept, it means individuals get a personalized card and make real transactions. So it goes beyond the sensor itself.

Fredrik Steinslien - *Pareto Securities, Research Division - Analyst*

Fredrik Steinslien from Pareto Securities. Following up on Christer's question on certification, kind of how confident are you that this will happen in Q2? And what's the timing and certainty there? Are we talking that this is going to be delayed a few weeks or months in worst case? Or...

Hemant Mardia - *Idex ASA - CEO and MD*

I think we're pretty confident. Of course, this -- it is a certification, it is a qualification test process, so you have to pass through. And there can be some wrinkles in the test, but overall, we're very confident. Obviously, there's a lot of preparation done, particularly with IDEMIA, to get before you

go into it. So we actually did precertification work. So we're very -- we're confident, but there is some window of uncertainty. If something has to be reworked, then there may have to be some additional work. But I would -- from what we've seen, we're talking weeks, not months.

Fredrik Steinslien - *Pareto Securities, Research Division - Analyst*

So window of certainty is weeks?

Hemant Mardia - *Idex ASA - CEO and MD*

Yes, that's what I would say.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

One thing I would add is just with certification, I think Hemant touched on it, we were in a phase in the past year that the actual certification program was being developed in parallel. So it's very undeterministic. We would think, okay, we're done, and then they would say, oh, we really need to look at this or that. We're moving out of that phase and it's really deterministic now. To Hemant's point, we know what the certification test is. We precertified. We tested everything within our control, so our confidence is quite high. But that certification is being done by IDEMIA, and IDEMIA will share those results with Mastercard. We will not get, because of security and IP, we don't get visibility into that. So as Hemant said, it's sticky in a way because we're intimate in understanding all of this. But with that said, it's a brand-new market and we're passing through. Now we know what all the hurdles are and we know how to certify. So my expectation is the contactless card will go much quicker because the process exists, and so -- and we know what it is. So the -- I just want to make sure because I understand the need for clarity and predictability, and we're trying to provide that as best we can in a domain where things are being invented on the fly. But that's, I see, in the rearview mirror. So going forward, I think we'll be able to be much more predictable on where we are in the process and our confidence level to start to give you more guidance going forward.

Fredrik Steinslien - *Pareto Securities, Research Division - Analyst*

A few more for me, if I may.

Henrik Knudtzon - *Idex ASA - CFO*

Okay, could I just add one more thing to your question just to follow up, and it's just repeating what Hemant said in his presentation, and I think the best -- what gives us most comfort about our ability to pass certification is the fact that Mastercard and IDEMIA are starting to talk to customers about this and to go into the bidding process. So it's actually in parallel, it's not sequential, which is a good indication for us of our probability of passing.

Hemant Mardia - *Idex ASA - CEO and MD*

And I -- just to finish off the point is that also because Mastercard are creating the market, they also create standards. So it's actually in their control also. So if they see something, they can also take, okay, the judgment, and they have the backing and the financial muscle to say, "Okay, this is the product that we want to take and we'll start shipping with." So there's actually a lot of other things that are deterministic in how they approach this, but it's really at their level that they can make those decisions.

Fredrik Steinslien - *Pareto Securities, Research Division - Analyst*

Question on OpEx. You commented that you expect lower OpEx in 2018 versus 2017, can you say a bit more on the magnitude of the OpEx reduction? What cost elements and why? And are you confident that this is not going at the expense of your approach in the market?

Henrik Knudtzon - *Idex ASA - CFO*

Yes, good question. So there's 3 elements to OpEx at IDEX. First one, the biggest one is payroll. We believe that we are at capacity. So with the current organization, there will be some additions and maybe some natural attrition. But the general level, we believe, is at the right level where we need to be in 2018. And we believe that we have the sufficient resources to do development, to do sales to commercialize. That's -- we have geared towards cards, so we've actually reduced the scope in a sense by moving out of mobile, and we're deploying those resources into cards. So we believe that we have the right number of people, and more importantly, the right people to actually succeed in this. So that's -- will be pretty constant from the current levels. And then the second element are the development costs. And as we are doing more of the development in-house, which we will do with the team we have hired over the past 12 to 18 months, we expect that to decrease the external element of that.

On other OpEx, which are pretty -- that's pretty constant in terms of leases and IT costs and all of that, we don't expect to see a major shift, perhaps a slight decline. But -- so those would be the elements. And again, I think it's important to stress that we have set the organization to a level where we believe we will achieve our strategy.

Fredrik Steinslien - *Pareto Securities, Research Division - Analyst*

(inaudible)

Henrik Knudtzon - *Idex ASA - CFO*

Yes.

Fredrik Steinslien - *Pareto Securities, Research Division - Analyst*

In a press release late January, you said you expect volume shipments in 2018. Can you elaborate a bit on what that entails? What volume shipments actually entails? And will we see first quarter breakeven in 2018?

Hemant Mardia - *Idex ASA - CEO and MD*

Do you want to take the volume shipment one or...

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

Yes, volume shipment, again, being a new market, the range of volumes we're hearing is from million units to tens of millions of units, right? So when we talk to our partners, that's the kind of guidance we're being given. So the volume -- we believe the volume will materialize this year. The question is to what magnitude? And so it's a handicapping game at best. And what we're trying to do is use as many tools available to us, which is, okay, we know the bidding process, we know what's being bid, we know what kind of pricing they're looking for, for volumes. And so there is an elasticity element of how aggressive can we be on pricing will have an impact on volume, so we're in those conversations. But we're confident the ramp will begin. So how that ramp materializes is you don't go from 0 to a million. You go 0 to tens of Ks a month to hundred Ks a month to millions a month, right? And so we really see that materializing in the back half of this year.

Henrik Knudtzon - *Idex ASA - CFO*

So I think that sort of indicates the answer to your question on breakeven as well. So it's hard to pin down exactly when. But to give you an idea of the numbers, I mean, to break even at the OpEx rate we just talked about and the numbers, we did share some expected ASPs in the Capital Markets Day and the gross margin, so ASP in the $3 to $5 range and gross margin about 40%. To break even on an annual basis with those numbers, we need something like 13 million to 15 million card shipments. And that's -- it's not a big volume. In fact, it's less than -- it's about 1/3 of a percentage of the total smartcard market, which suggests that we don't really need to have a very deep penetration to actually get to breakeven. So we're pretty confident about our ability to do that. What -- we can't pin down exactly when because it's a bit outside our control. It's really are -- the partners we're working with, Mastercard, IDEMIA, they choose when it will happen. But what we are seeing, and what Hemant talked about, is the incredible interest we're seeing. We are in the bidding process now, so it's about to happen. But we just don't -- we're not pinning down exactly that quarter.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

And the other thing I want to touch on which Hemant did, the way our solution has been engineered, it fits into the current card manufacturing flow. So they're already doing billions of cards. So this can switch very quickly. This isn't, "Oh, it's got -- there's -- got a capital acquisition, and they've got to put in a whole new line and it's going to be delayed." So what we're doing is preparing to make sure that when that switch happens that we're prepared and we're not the one standing in the way. Because you can imagine if an issuer says, "I want to deploy these to all my customers," the last thing we want is to be the bottleneck. To give you an example of my experience, I was involved in the ramp and design-in of the Galaxy S4, at the time it was 90 million units. We had to make risk buys of millions of units while we were in qualification. So I have a tremendous amount of experience in this kind of a dynamic. And what we have to do as a supplier -- so our economic buyer is IDEMIA, so we are having weekly calls with IDEMIA about everything we need to do in our product to support millions of units a month. And right now, it's about how you present your material to the line, how do you do packaging, how do we do supply chain forecasting. So when I mentioned we went from designing our silicon and matcher and algorithms, we're now in -- talking about what's the pad structure need to be on the package to ensure a high-yield and high-volume manufacturing. So that gives us kind of good leading indicators that we're working. And this will happen, the question with the market that doesn't exist. And you saw it in mobile, it can go very quickly and it can ramp significantly. And as it ramps, there'll be bottlenecks that we're going to have to work with our partner to remove. So hopefully, I gave you a little more insight.

Unidentified Analyst

Just a few quick questions. First, you mentioned the breakeven volumes, current rates and OpEx level is at about 13 million to 15 million units or thereabouts. You also mentioned earlier in the presentation that you were in the midst of RFPs live bidding. Could you sort of contextualize those? Do you have a range for the volumes that are inherent in sum for those RFPs, and also for those 6 customers that currently are in trials through your relationship with IDEMIA?

Hemant Mardia - *Idex ASA - CEO and MD*

Yes, I think Stan actually touched on it. It's because of their sort of new nature and this -- you're looking at Mastercard, of course, what they are doing is looking at their top customers. And if you think about Mastercard's top customers, they are big customers. So the ranges are -- there's a big variation. So we're seeing ranges from 100,000 up to north of 10 million. And one customer, even 10 million plus. So the ranges are very big. Clearly, I think it's very important, as Stan has pointed, that this has to go through ramp phases and work up the volume steps. But the scale of the programs are significant. The larger the scale of the program, of course, the longer the gestation that they will need. But this was always the ambition. Mastercard weren't interested in a few tens of thousands, there was always the expectation and the focus. And in fact, the insights that we're getting is that Mastercard are actually selecting and filtering and turning away, they want the real customers who -- so these trials are not trials that are, "Let's just see what happens," they're trials that "If you do this trial, we have an expectation that you're going to move to volume deployment." So that's the level of interest. So I think, for us, the window is actually huge. And as Stan says, the best thing we can do is prepare for that window because what we don't know is the trajectory of how quickly that will go. But the scales are -- those are significant ones.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

But -- and again, to Hemant's point, in one conversation just 3, 4 opportunities, the range was from low million to 100 million. So we have to look at that. And again, the insight is, this is not a demand issue. The demand is overwhelming. It's how quickly can we get the product where it needs to be to ship in significant volumes. So I'm preparing for unbelievable pressure. Like I saw in Touch, right? I was involved when Touch exploded, and the pressure is just phenomenal because everybody wants it. And they want to go from 0 to hundreds of millions of units, and there's just a natural progression you have to go through to hit those kind of volumes.

Unidentified Analyst

Sounds like a good place to be (inaudible).

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

It's a happy problem they say in Asia.

Unidentified Analyst

And just sort of following up on that with respect to sort of the product, as you mentioned, given that to be the constraining or limiting factor at the moment. At the moment, you're certifying a contact-based product, but you also, in December, announced a larger sensor size. So if we sort of look at these steps going forward, certification of contact, certification of contactless, introduction of new sensor size. So if you really have those sort of indications of demand in terms of the product features that are in your pipeline and also the milestone achievements that you have to go through to reach certification of the next sort of products in phase, so we know that contact is probably going to be okay very soon. And then you have the contactless, does that require a new ASIC, for example, in terms of power consumption? And secondly, in terms of the larger area size, are there sort of any requirements in terms of IDEMIA or Mastercard for the new sensor size? Because you mentioned in your press release or news announcement that there was a real need for accurate enrollment, quick and accurate enrollment, I think, were your words. So if you can contextualize also those features as with, for example, FARs and FRRs, that would be very interesting.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

Okay. To start with the ASIC, we had the vision of contactless when we actually did the last metal spin of the ASIC. So we had already modeled contactless and what the requirements were for the application when I joined the company. So one of the first things I worked with Hemant on was, okay, the application we have to make sure this ASIC can deal with is contactless. So our ASIC was engineered and designed 18 months ago with the requirements of contactless, and I'm unbelievably proud of where that ASIC is. I mean, it is phenomenal. Power consumption is, like, hits levels we didn't think were achievable with an off-chip, to give you an idea. We're right there with silicon sensors, if not a little better. So the ASIC is not an inhibitor. We're there, check the box. We actually got a lot of headroom now. I think when we look at the certification process, there's a lot of similarities, and I don't want to say it's a Qual by similarity. But basically, the contactless will go through the same Qual. And because it's the same -- because we know a lot about it, I mean, there is -- the laws of physics, you have to take certain tests. But we know what those are. And a lot of the delay that we saw in the first pass was really developing the Qual process. So as Hemant said, we expect contactless for 2 reasons. We know what the process is and there is huge pent-up demand. So there's going to be a lot of energy around accelerating. To give you an idea, our partners said, can you fly experts to Thailand so when the -- so that we can save days. So we're seeing the right energy where our partners are trying to save days. So this isn't a "Let's, leisurely go." So for me -- and when we look at the Qual, like the large sensor, it's really the pad structure. It's packaging. So what we see when we introduce new products now, the limiting factor isn't our core technology, it's our packaging. And packaging cycles are quite short, right? So we're not talking about silicon cycles. A packaging cycle, we can turn pretty quickly. So we would expect a couple of things, as investors, to look for from us. We'll become more deterministic on where we are and be able to start to call things that are important to a business much more predictably going forward. And we're doing everything we can in the technology with the foresight to say, we want to prepare to make sure we can go on to high volume quickly, and we've done that. And that's all work that was done, we're talking going back almost

18 months ago when we were talking about contactless, what the requirements are. And the phase we're in now is really packaging. How do you present your material to the line, how do you ensure that you can get high yields. So whether it be a large -- and that's the beauty of off-chip is it's really seamless. We can go from a smaller sensor to a larger sensor and all we're doing is changing the packaging format, which is very short cycle time. So I don't know if you wanted to add to anything.

Hemant Mardia - *Idex ASA - CEO and MD*

Yes. I think you -- just to sort of take the sort of underlying question, our contactless sensor, again, as Stan talked about, the ASIC platform is done. So that was huge heavy lifting. This ASIC, we had engineered at TSMC. They are #1 foundry in the world. We got a unbelievable cost point. The -- what Stan has been doing is basically with his team hardening the product for volume, so we're there. And we actually released the sensor. We designed the contactless sensor over a year ago, and that sensor is the one that is going through the contactless program. So we don't -- we're not using the even larger sensor, we already have a good-sized sensor. In fact, we already took that opportunity before. So that sensor has a very good area, which will suit. So the contactless program now is really about the packaging and production presentation, not about the technology or the sensor. The larger sensor is really about our vision of taking this to another level. So this becomes a premium value product. We want to drive really great margin and great revenues, but also give the customer something that they are looking for, which is, make it very convenient, very easy to enroll. So we just want to take that up to another level. And we see that our off-chip, the same ASIC, allows us to do that. And of course, once you can do that, we look at the other verticals, identity, access control, where the forgiving nature of a larger sensor gives a great user experience. So this is really just to show that we actually have a very compelling portfolio and we're not just reliant on where we are today, we have that pipeline coming.

Unidentified Analyst

And a final follow-up is, obviously, then to where are we today in terms of false acceptance and false rejection on the current sensor size? And where do we target to go with the 13 by 13 sensor size, please?

Hemant Mardia - *Idex ASA - CEO and MD*

All right, sure. We can take that between us. But I think, first of all, as we talked about, we acquired our own matcher technology about 4 years ago. This was a really unique type of technology is what is called ridge matcher. And it is fantastically suited for very constrained processing, very low power. And what we've done is adapted that, but it was always a very superior FRR. And so with work that's been going on by the team to really crunch the footprint down, we're in low single-digit FRR at the sort of FARs, and currently FAR is around 1 to 10K, 1 to 20K. Actually, our matcher can't go as low as that, so it's actually better on -- for FAR than pretty much anything out there. So we have a lot of degrees of freedom with our matcher because we control it in-house, so we optimized it. So as we go -- so with -- even with the current generation and current sizes, we're below the limits that are necessary and that are expected. And our focus is, therefore, great user experience. And the trade-offs that you get when you look at a problem like a card, you've got things that are competing. You've got speed of operation, you've got power and you've got biometrics. Those 3 things are trade-offs. That's why we're very confident in our technology, and our customers are confident in our technology because we can make those trades in whichever way works best.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

Well, and the other piece is what we're seeing is it's such a constrained environment that you have to architect a solution from grounds up for that environment. You can't take a mobile matcher and just repurpose it. And in order to rearchitect it, you have to have the systems' insight and understanding. So as Hemant said, we're trying to balance on the head of a pin, right. We have NFC field power, we have to capture the print, match the print and report the results in less than 1 second. And so as you can imagine, the delicate balance of how you do that and hit FRRs in low single digits is a tough technical challenge, but we're there. It's done, we're there. So that's why we have this confidence in our competitive position because it's a really tricky technical problem. And to be in a position where we're not talking about it, we are actually demoing this to customers is a pretty exciting time for the company.

Christer Roth - *DNB Markets, Research Division - Analyst*

Christer from DNB again. On the ASP range, can you say what dictates kind of the lower ends towards the higher end? And do you -- are you still confident that, that will be the range when you enter kind of larger volumes, let's say, in '19, 2020, et cetera? And on the gross margin [data] mix, will that -- will the dynamic be the same with the larger sensor? Do you expect the same gross margin there? And also, how will the larger sensor affect the ASP range?

Hemant Mardia - *Idex ASA - CEO and MD*

Maybe I can take the ASP and you can take the larger sensor and also just the -- so I think, yes, we are confident in the ASP range. It's about making the total card proposition work. We want this market to be huge. So what we are focused on is looking at the whole card cost and the whole system. And because we have off-chip and because we have our own processing capability, we can take that cost down significantly. And by doing that, we create value for ourselves. We can command our price because we're lowering the overall card cost. So by dealing with things like the security, dealing with things like the micro control processing that you need by having our own matcher, we control a lot of value in the card. And we understand the sort of elasticity, the -- obviously, the pricing will determine volume. So when we looked at this, we've worked together with IDEMIA or Mastercard to understand the total cost buildup. We've looked at where card costs are today for a smartcard, and you probably know that they're north of $30, that's not going to fly. So we've -- I mentioned the sort of very aggressive costing. But what we do -- we do expect is that we can have different price points for different products, depending on how much complexity our partner wants us to put in and [effective], but we can work with that because we have that flexibility. So as you then talked about the larger sensor, we can work that. But I can -- I'll let you talk on that.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

Yes, I think to answer the question, to me, gross margin is part and parcel with innovation and differentiation, right? So you're seeing in mobile right now, the margins are collapsing because, really, everybody essentially has the same solution. So as I mentioned earlier, my margin expectations are that this should look more like automotive than mobile, given the -- but the other thing we have to look at is to do extremely high volume, you have to hit and facilitate card. There can only be so much premium over what a smartcard is today. So there's kind of this envelope you have to fit in now as you have the technical domain, the business domain, so that's why we're excited about off-chip because our vision is essentially a card on a chip. Because in order to hit this high volume, that's what it has to be. Maybe there's an EMV in another chip, but that's about what the budget will be. And we have line of sight of that, and we know how to get there. And we can get there at the time when this will be hundreds of millions of units. So our roadmap and our pipeline, back to the question about our investments, we recognize we have to have a strong pipeline of innovation, but we also have to be fiscally responsible with our cash. And I think we're hitting that fine balance. And I'll leave it to Henrik to continue to be the voice of fiscal responsibility, and he does a good job at that. So I think we've hit the -- struck the right balance. But we really -- and we didn't give you exact numbers, but as you can imagine, right now, there's a range of people who are doing tens of K. And that ASP is 2x of what we're talking about for bidding. So there's a kind of a factor. We're seeing some opportunities that ASP is 2x, 3x of what we would expect for somebody on a high volume sort of opportunity. But we do believe for this market to really materialize there needs to be a dramatic cost shift. And the 2 vectors of that cost shift is you have to have integration of the silicon, which is why we think off-chip is the right architecture, and you have to have super cost-effective packaging. And so you have to be able to use standard packaging approaches, again suited for off-chip, that leverage the scales that are being driven by other applications like mobile and so forth. So you can't use exotic packaging, you can't use exotic presentation techniques, you can't have 3, 4 chip solutions. So that's why when I started working with Hemant, it was just so slam dunked that off-chip is kind of the only architecture that can facilitate the dynamics we're talking about, which is high levels of integration due to Moore's law and leveraging the standard packaging formats to drive the cost out of the packaging. So one thing I learned in mobile is when you're shipping billions of units, the supply chain has to be super efficient. So if there's any inefficiency in the supply chain, it will be, by definition, taken out. And so we want to be the ones that take it out, and we want to get disproportionately rewarded for that. And that's kind of the vision we have, and why -- what I'll be driving as a CEO is that kind of vision of that's how you win the game.

Hemant Mardia - *Idex ASA - CEO and MD*

And if we take the specific point on the 13 by 13 sensor, for us, the team are working with the remit of no extra cost.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

0 extra costs, no power add.

Charlotte Knudsen - *Idex ASA - Director of IR and Communication*

Last question.

Unidentified Analyst

You mentioned that you had some partnership and collaboration with other card integrators. Could you elaborate around that? Will there be a formal agreement? Yes, can you say something more about this partnership?

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

Why don't you take the...

Hemant Mardia - *Idex ASA - CEO and MD*

I can -- yes, I can take the current position. Right now, we know that -- so first of all, we'll take IDEMIA, which is the one that we've announced as a card integrator in the frame with Mastercard. They've come out of the merger between Oberthur and Morpho. So they are a 1 billion-unit type sales of smart cards today, so they are a major player and a major channel to market. So through IDEMIA, we expect to get a lot of market window. But of course, our approach is to work -- our solution is designed for standard card production to work with (inaudible) card integrators. So at this stage, IDEMIA are far ahead because we've been working with them and they've been working with Mastercard for a long time. Others are much further behind. So our energies are very strong on this. But at the same time, everything we're doing is completely applicable and is being sampled to others. So we are working with the other integrators, and I think it would be expected that there will be some form of saying -- statements of who they are or how they are working. But at this stage, that's too early for us to talk about. Within Asia, we've announced one, the Feitian Technologies. And again, there's other large integrators that we're working with. And those are accelerating, and I think Stan can talk. So I think we are focused on the main players who are aligned with the strategy. So for us, it's -- we want to work with the people who are aligned with this is a mass scalable product and taking our technology and integrating it into that. So part of this is not only the card integrator but how do we enable. We want our products to get to market as fast as possible, so we haven't just said, "Okay, let's wait for the card integrators," we've been proactive. And we've created, first of all, a reference design for contactless to prove and to do all the heavy lifting because there is a lot of heavy lifting that we've got off an amazing systems team that have done. That gives the performance, but we then will be announcing -- we expect to be announcing maybe in the next quarter, some large mass manufacturers who then supply into the card integrators. So we'll give them, here's the technical solution and here's the manufacturing solution, and that will accelerate the whole market. So we've set up a strategy, and Stan has been instrumental in that, to be able to enable integrators to work quickly with our solution, get it to market and then start to adapt that as they need to.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

And I think -- let me answer the question a little more generically, which is, when you have markets that are this huge, like billions of units, so they need multiple suppliers, right? So card issuers aren't going to say, "Oh, I'm -- I just want to buy my card from one supplier." They're going to want to buy that exact same card from multiple suppliers. So as us being a supplier to their supplier, we envision we will have to work with multiple

suppliers, much like we believe there will be competition, right? We don't believe that the market will materialize in the magnitude we're talking about with just IDEX as a supplier. So the dynamics of markets like this, and we can look at mobile as an example, you will see supply chains evolve, but you will see multiple suppliers that are card integrators. You will see -- and it has to happen because no one card provider can provide the volume necessary. So what you'll also see in the card market is quite a bit of cross-licensing between -- even you see cross-licenses between Mastercard and Visa on things like NFC. You see cross-licensing between IDEMIA and Gemalto. So what I like about this market is it's a very rational supply chain, which is, they operate in a way that they collaborate to make sure that the market happens and is healthy. And so we do envision that we will have multiple partners. Again, we're in the early stages of creating a new market. It's not unusual for one player, like an IDEMIA, to do the heavy lifting to get that market off the ground. But very quickly, very quickly, it will go from that to multiple integrators, multiple -- so that's what we envision and we're preparing for. Because as these dynamics happen, we want to make the chess moves necessary to make sure we've created competitive barriers and we're disproportionately rewarded because we did the heavy lifting on the front end. What we don't want to do is have somebody come in and take the benefit from that heavy lifting.

Unidentified Analyst

And then your sensor, bigger sensor, is that intended for payment or just ID?

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

It's intended for a lot of applications. But one of the things, and Hemant touched on it, the work we're doing with Mastercard, I call it a privilege view, because we're out there with real-world experiences and we are seeing what the challenges are. And what we're seeing is enroll is a major, major challenge, whether it be remote enroll, because you don't have visual feedback. So the large sensor really is a means to address this enroll phenomenon, such that we can get a very simple enroll. And that's a big issue, so we start with what's the macro issue we're trying to solve out in the field, and then we come back in and say, "Okay, what do we need to create for a technology to solve that issue?" But a larger sensor that doesn't cost any more and doesn't draw any more power, you can imagine enrollment is a big issue in multiple verticals, and that's why we think it's the right answer.

Unidentified Analyst

Last question. The government ID market is very huge, could you say something about your strategy to get it into that market, your partners and so on? And how far ahead do you think it will be before the first deployment in the government ID vertical will be?

Hemant Mardia - *Idex ASA - CEO and MD*

(inaudible) We've obviously led off on payment. We've had a very focused, high-energy program on payment because of the scale of that and the fact that banks can move relatively quickly once you've done certification. They have customer base they can deploy, they make the decisions. And because once you've hit all the standards, you've hit all the standards, you can take that product. ID programs, government programs tend to be longer, and we've seen that. So we are addressing that now. I think we're at the early phase of that. But we -- a lot of the same partners that we have address both vertical or multiple verticals, in fact, access control, ID. So we are working with some of the integrators that are identified with ID programs, local ID programs and global ID programs. So we are quite pleased with the fact that they like our sensor, they like the larger form factor that we've just been talking about, and then as we move into the even larger form factor. So I would say for identifying the scale of that, it's -- they're very much longer programs and there are different requirements. But our sensor, once it's integrated to the card, our customers are basically saying, we're taking it to all of these verticals. That's what we're working with. So we selected partners that access the main moving opportunities that we've seen, so for example, Asia. We know which programs are moving and we've gone in with our teams and targeted those.

Henrik Knudtzon - *Idex ASA - CFO*

Okay. Thank you very much.

Stanley A. Swearingen - *Idex ASA - Chief Products Officer*

Thank you.

Hemant Mardia - *Idex ASA - CEO and MD*

Thank you.