Solvay Investor Update 2018

Transcription

Monday, 24th September 2018

Geoffroy Raskin, Head of Investor relations: Good afternoon and welcome to Solvay's Investor Day. I would like to point you to the disclaimer which is in the booklet; I am not going to read it out loud, but invite you to read it carefully.

This afternoon's session is going to be split in two parts. First, Jean-Pierre Clamadieu, our CEO, as well as Augusto Di Donfrancesco, Vincent De Cuyper and Pascal Juéry, members of the executive committee, will actually present you Solvay's growth platform as we have built it in the last couple of years.

We will have a break for coffee at 15.00, and 30 minutes later Karim will pick up the thread and will explain to you how that growth potential actually will deliver into shareholder value. Jean-Pierre will conclude the presentation session and we will then go into Q&A, which will be moderated by Jodi Allen, member of the IR team. You will all be invited to participate, both you in the room and the people who are following by webcast.

We finish with a cocktail reception in the room at the back, only for the people in the room, obviously, and so we are all looking forward to being there. Before I hand over the floor to Jean-Pierre, we have a message to you from our Chairman, Nicolas Boël.

Introduction

Nicolas Boël

Chairman of the Board of Directors, Solvay.

Welcome by the chairman

Good morning ladies and gentlemen. It is a pleasure for me to be in front of you this morning to introduce the Solvay Investor Update. The board of Solvay has always been a very strong initiator and a unanimous supporter of the transformation that the company has gone through over the past years, moving from a commodity chemical company into a specialties product company.

This transformation has happened through an important portfolio change over the years, starting with the building of our specialty polymers franchise, the sale of our pharmaceutical business, the acquisition of Rhodia, divestment of PVC business, and finally, the acquisition of Cytec in 2015. All these changes have allowed Solvay to move into new markets, new products and gain new customers, such as Boeing, Airbus and Apple, just to name a few. We have built over the years what we believe is a top-class platform, which gives us a very strong base for superior, sustainable and profitable growth.

The transformation would not be complete by just focusing on marketing and products. The other important element of the transformation of Solvay is about the culture, the people and the organisation. We launched a breakthrough simplification project in March, to simplify the group's organisation, enhancing efficiency and customer focus. Today's presentation will give you a clear picture of where we are and the growth potential that awaits us over the next year, as we are convinced that we have established a very strong platform in terms of portfolio, people and culture.

The second point I wanted to address with you concerns Jean-Pierre's succession as CEO. Following his decision to become Non-Executive Chairman of Engie, the board has launched a very comprehensive and thorough process to identify a successor, a process led by the nomination committee. We are very pleased with the way this process went and we expect to be in a position to make an announcement in a few weeks.

The mandate for the new CEO is crystal clear: continue building on our strengths, using the pillars and the foundation that exist to establish Solvay as an advanced material and specialty chemicals company and focus on value creation.

The profile we have been looking for is, naturally, someone with a knowledge of the chemical world, knowledge of the Solvay markets and products, a strong track record for delivering results and implementing change. But beyond all that, we have been looking at a leader with strong leadership capabilities to build on Solvay's values and strengths. You should not therefore expect any fundamental changes in strategic direction, or priorities, in the coming future. Expect an even stronger focus on technology, innovation and most important, talent management, to focus on customer intimacy and create sustainable value. This is value creation that all our stakeholders expect and among those, the shareholders that you represent.

I wish you a very interesting discussion and I thank you for your support.

Our Strategic Journey

Jean-Pierre Clamadieu

Chairman of the Executive Committee and CEO, Solvay

Why are we holding this investor update?

Hello, everyone. I am very glad to be able to spend these next few hours with you to share the strategic journey on which Solvay has been for the past few years and give you some perspective. I know that some of you are wondering why we are having this event today with a CEO who has announced his departure. There are several reasons: the first one is timing. It has been about two years since we had such an event. From what we know, from what I know about the succession timing, it is likely that my successor will not be in a position to do such an event until the mid of next year. We felt that there was probably a need to have some dialogue with you.

The second reason, as Nicolas Boël has mentioned, is we really see a strategy of continuity. The board has expressed clearly its support on the strategy that we have been developing over the past few years. Clearly my successor will come with a very clear mandate to

continue. He will have, certainly, a different approach to a number of subjects but the overall strategy will continue.

Third, we think that we have some news to share with you. We thought that it was really important to be able to have this face-to-face dialogue on top of what we do during our quarterly call.

Important news

We have news on soda ash. Turkey is behind us; that is clearly something we want to make very clear. We have been discussing for years and years about the arrival of this new capacity, fearing a catastrophic scenario. This is not what has happened. We are coming today with a very clear and simple message: new Turkish capacity has been absorbed and we have a business that is moving now in a territory where we have an opportunity to continue on the value creation journey. Pascal will develop this later on in the presentation.

The second piece of important news is regarding our Advanced Formulation cluster. This is back. We are back into growth mode as far as Advanced Formulation is concerned and we have very solid contributions coming from the different markets that we are serving.

Regarding the Advanced Materials, looking at the 2018 results for the first two quarters, we might have the feeling that the growth is a little bit below our expectation. This is the case and Augusto will share that with you. However, clearly, the road in front of us looks incredibly exciting, as far as Advanced Materials is concerned. These are really the key messages that we want to share with you. Karim will come back at the end of the afternoon, demonstrating that what we expect in terms of free cash flow generation and value creation is indeed something which should allow Solvay to continue in creating value for its various stakeholders. Obviously, shareholders are the ones on which we set a priority.

I am not alone and that is another reason why I think this event is important. I am the guy leaving but there is a strong executive committee team which will continue to support my successor. You will hear today Vincent, Augusto, Karim and Pascal. Hua is here and will participate in the Q&A session. Cécile was supposed to be here. Unfortunately, she had a bit of a health issue. This is nothing too serious but made it difficult for her to travel to London today.

Our strategic journey to a stronger Solvay

Maybe if I want to capture the strategic journey just in one slide, I would say that since 2012 we have done a very significant portfolio transformation. You will have in mind the key events. Nicolas Boël reminded us of some of it during his introduction. At the same time, we were delivering synergies and growth. If I look at the 2017 numbers, I think they show the extent of the transformation, with 22% EBITDA margin, 68% cash conversion, 70% of our EBITDA coming from the growth segment and 50% of our sales in what we call the sustainable solutions part, in our sustainable portfolio management tools. This is a snapshot. We are continuing the journey with a strong focus on culture and organisation: a simpler organisation, culture focused on the customer. This is to be able to maximise the organic growth that we can deliver. We think that this will be the theme for the next few years.

A more resilient, more profitable group

If I turn in to numbers, again Karim will come back in more details. From 2012–2017, profitability, if you look at EBITDA margin, was up from 16.5% to 22%. Maybe even more importantly, return, for which we are using the CFROI metric coming from the old tool, was 4.2% in 2012 and 7.1% in 2017. For the first time, in the last ten years, we are back in value creation. These are clearly the regions where we want to stay in the next few years. We will continue to be firmly in the value creation space. We are going from very diversified to focused. We are going from complex to streamlined. This is really the journey that we have done during these past few years.

Integrating sustainability into decision-making

Sustainability has always been a key element of our strategy. We recognise that, as a chemical company, we have to demonstrate our willingness to develop a sustainable strategy. More than that, we recognise that the move towards a more sustainable economy is creating a lot of opportunities for us. Probably where it matters most is our ability to embed sustainability in our decision-making process. When it comes to portfolio, this tool, which we have had the opportunity to share with you on various occasions is what we call the sustainability portfolio management tool. This allows us to identify, within our businesses, which segments are sustainable solutions, which segments are challenged and which segments are neutral.

What we have been doing during these past four years is to increase very significantly the share of sustainable solutions. 50% of our sales today are part of sustainable solutions. We have reduced our exposure to businesses that we considered as challenged. Clearly you see a very significant transformation of our portfolio if you look at it through the lens of this tool.

You will see later on in this presentation that we are also making today an important statement regarding our willingness to participate in the fight against climate change. Karim will touch on that. It is a bit of a breakthrough within the chemical space. We are taking an objective that we expressed in terms of absolute value reduction of CO_2 emissions. Up until now our objective was phrased as a reduction of our carbon intensity. Now we are saying, whatever the growth is, and we expect the growth of our activities to be very significant, we are taking the commitment to reduce our CO_2 emissions. We know that we are a significant emitter and we know that it is very important for us to make sure that we indeed create an inflection point, again, expressed in absolute terms.

Innovation at our core

Something else I am pretty proud of is really our ability to put innovation at the core of our strategy. When I discuss with our customers in various segments, I am very pleased when I receive the feedback that Solvay is seen as the innovator. This is true in Advanced Materials; this is true in a number of segments in Advanced Solutions [Formulations]. We have increased, over the last five years, the amount of sales that we reinvest in terms of research significantly, from 2.4% to 3.2%. You will see that this is very differentiated between our growth segment and the other ones. This shows that, indeed, we want to continue to invest in science and innovation because we know that, in our industry, this is what will create growth opportunities.

I just want to mention two projects that we have announced in the past month. We have just announced, a couple of weeks ago, the establishment of a new global, world-class research centre in Lyon. We will have 1,000 scientists and engineers working in Lyon in what will be the largest research centre for Solvay. Lyon is a great place to develop such activities because there is a very active cluster with universities, various public and private research centres and our own team. That is something which I am very proud of. I am very proud that we have made the decision and that we are moving.

In Brussels we will also establish a new research centre focused on Advanced Materials. With that, I think the company will have the setup it deserves in terms of research and innovation support.

Organic growth

I think the name of the game for the next few years is really organic growth. I think we have been able to build two very strong clusters. One is related to Advanced Materials, the other one to Advanced Formulations. They are very focused. We are serving a large number of markets. They are very focused, each of them, on a very visible segment. Next-generation mobility is very key for our Advanced Materials, what we do for automotive, aerospace and a few related activities, building on the strong trends towards sustainability is proving to open for us very significant growth opportunities. Augusto will have the opportunity, in a minute, to develop this.

In Advanced Formulations, the name of the game is resource efficiency: oil and gas, mining, agrochemical formulation. We are bringing to these various segments the solutions that they need to indeed be able to use and extract resources in a very efficient way. In these two cases we are really seen as solution provider. I know that some people tend to think that Solvay is hugely complex and that we are serving hundreds of markets. In reality, these two segments, research efficiency and next-gen mobility, represent today two thirds of the sales of these two growth engines. It is why we want to spend a bit of time with you, to let you understand what are the key drivers.

With that, I will turn to Augusto for a focus on our Advanced Materials cluster. I will come back at the end of the day with a few concluding remarks. Thank you very much.

Advanced Materials: Next-Generation Mobility

Augusto Di Donfrancesco

Member of the Executive Committee, Solvay

How did you get here?

How did you get here? I do not need an answer. However, I am sure that, however you travelled today, you have travelled with some Solvay advanced materials. If you travelled by car, several kilogrammes. If you travelled by plane, hundreds of kilogrammes. The good news is that this quantity will rise in the future because we are transitioning into the next-generation mobility. This is a significant opportunity for Solvay, as Jean-Pierre said.

Our advanced materials are providing unique, innovative solutions for the tougher materials challenges to support this change, this next-generation mobility. Actually, it may sound like

next-generation mobility is going to happen in a while. Instead, it is accelerating. It is a revolution. It is a tremendous technology shift and we have a lot to say on it.

I am going to give you a deep insight on how we work on this opportunity, and the opportunity that we see for us.

Global leader in high-performance materials

The Advanced Materials cluster is 50% of the EBIT of the group today. It is significant today. It is significant for the growth of tomorrow. It is a very innovation-driven business, where we are investing the significant resources in R&I, as Jean-Pierre just said, with the last decision on investment.

It is a nice sustainable margin business, so again an attractive segment to stay; an attractive segment to continue to develop. The core of this cluster is represented by our unique portfolio of specialty polymers, composite materials polymers, technologies that we have built in the last 20 years with internal development and targeted acquisitions. Cytec is one of the major acquisitions that went in this direction.

We leverage this strength that is unique in the industry. You cannot find a portfolio like this in the industry. We leverage this with our deep application expertise with our team and our strong customer intimacy. This translates into unique innovative solutions that our customers appreciate; we can absolutely tailor it for what our customer is looking for. 50% of the sales of this segment is in aerospace and in automotive. That is why I am going to focus on it in the presentation.

Aircraft fundamentals

Let us start with aircraft, a market with strong fundamentals driven by and supported by an increasing passenger traffic demand. The global fleet will double in the next 20 years. In the same period of time, 70% of the older planes will be replaced with more efficient planes, so huge, huge demand. There is a fundamental unmet need in this industry. The current technology cannot follow the demand. The consequence is a very huge backlog. If you ask for your private jet today, you will have it in five, seven years from now so absolutely a long time, long backlog.

To meet demand, a fundamental technology shift is needed in this industry in order to accelerate the build rate while continuing building aircrafts more fuel efficient, lighter at the end of the day.

One of the crucial technologies is carbon fibre composite. Carbon fibre composite can give an answer how to increase build rate, how to make planes lighter, so more efficient. This is the reason why the weight of carbon fibre composite in the new model, in the current model is constantly increasing.

Solvay is there with a strong technology leadership position. This technology leader position translates in a number of solutions that are in the plane today and you can see there in the picture. Our technology leadership is based on a portfolio of technologies, polymers and materials that nobody else has in the aerospace industry. As I said, these bring together with our team the ability to discuss with our customer with the same language, with deep technological knowledge, ability to scale up what we develop with our customer – also important – and we are rewarded by our customers with long-lasting strategic partnership.

In the last couple of months, we announced the signature of four important long-term agreements with Airbus, Bell, Safran and Spirit. These four are worth above €1 billion during the duration of the contract. Really, this is something we are very proud of.

Key programme ramp-ups

Now, allow me to show what are the key programmes that we have in the commercial portfolio today that will drive our growth in the short to midterm. These are the key, as I said. If we start with the 787, there we provide the secondary structure and the structural adhesives. Also, we provide the primary structure for the 777X that is also ramping up nicely [to begin in late 2019]

The A220, this is the formerly C Series. This is enjoying a much better commercial successful than expected as a consequence of the alliance between Bombardier and Airbus. There, we supply the wing and many other parts.

We also have a strong position on the US defence. We are the main supplier of composite material for the F35 Joint Strike Fighter. Last but not least, our innovation is bringing breakthrough opportunity to our customer to make the building rate faster and more efficient. It is the case our infusion technology that is used in LEAP engine for the A320neo and the 737MAX.

These are programmes that are ramping up nicely now. This propels our growth. We are seeing this clearly during the year in our account. However, this today, as I said, is what is for us the next-generation aero. How we are going to make improved productivity, efficiency in the manufacturing. How we are going to make plane much more efficient, much more fuel efficient.

Technology leadership, innovation and partnerships support future growth 2025+

These are the core technologies that really are used today in a multitude of development programmes with our customers. We have a very, very strong pipeline of development programmes that we have never ever seen before.

Resin infusion technology leader

When you look the first true technology, the resin infusion technology and the bonding technology, these are already used in the key programmes today. I discussed for the resin infusion for the LEAP engine. However, I could give you another great example that is gaining a lot of attention for our key customers. It is the MC-21, the Russian aircraft where this is the only example, the first example of a large wing done out of the autoclave with our resin infusion technology dramatically reducing the time to make the parts. This is gaining momentum in a number of key programmes. This will really support the next-generation aircraft.

Launch of bonding technology

Second, we are a leader in structural adhesives, very important. By the way, we just announced a new plant in Wrexham that is ramping up now to support strong demand, because these structural adhesives have the potential to replace the fasteners that you see in the planes. These are very heavy. In addition, they require a lot of time and they really make the manufacturing cycle very, very long. This is a technology that we call FusePly that is gaining a lot of momentum and attention for our customers.

Thermoplastics technology

The third one, thermoplastics technology. Clearly, this is the way to bring what is the high productivity rate in the automotive into the aerospace. This has a lot of attention, a lot of programmes related to this. I wanted to give you a little bit of deep dive on this part because we have there a unique value proposition for our customers. Allow me to make a step back.

Solvay is uniquely positioned in thermoplastic composites

Thermoset composite is a complex technology. However, essentially the polymer that is used is the same polymer that you have to specify, you have to customise for different applications, is the epoxy resin. When you go into thermoplastic, the polymer counts much more. We are discussing about high-performance polymers, not commodity polymers, because they have a structural part to do in the thermoplastic composite.

If you discuss with the customers in aerospace, you discuss about PEKK. If you discuss about customers in automotive, you discuss about PPA, PPS. If you discuss with oil and gas customers, you discuss PVDF, you discuss PEEK. Sorry with all the acronyms but these are all products that are in our portfolio. We have much more but these are there.

What is really unique in Solvay is that we have all these together with the best-in-class composite technology. We have in house all the building blocks to make the best thermoplastic composite that our customers are asking us.

We are seeing tremendous acceleration of the thermoplastic development in Solvay since the acquisition of Cytec, since we put together the team working together in developing this thermoplastic technology. This is visible. You may say, 'But when are you going really to put some thermoplastic composites in a plane?' They are already there. They are already in commercial programs. We are the key leading supplier in aerospace of thermoplastic composites already, based on PEKK.

By the way, we are preparing a much stronger ramp-up that we expect. We made an announcement investing in capacity in PEKK, because PEKK is what is used in aerospace. We have all the capacities needed for our customer in North America, in India. We are investing in additional thermoplastic prepreg line, so strong ramp up expected.

However, we are seeing also nice development in automotive. Automotive will take longer. There also, we are seeing acceleration and the strong partnership with key tier one like Faurecia to accelerate the adoption of this technology.

One part that is emerging strongly now is oil and gas. Oil and gas, there is a tremendous need to make in the subsea system, in the risers, lighter risers, better risers. They resist to the new condition in exploration in deep water. This part was a little bit unexpected but is accelerating much more. It will be much faster than automotive. However, I am not going to discuss about this today.

I want to come back to mobility. I think it is clear that we have a strong portfolio of commercial programs ramping up today that will propel our growth short and midterm. We have a strong pipeline of development programs where our technologies are enabling the next generation aircraft that is a much huger opportunity for us than ever in the past.

We make cars lighter and more efficient

Now, some of you probably did not take a plane; you took a car. Probably, you are also interested to know what is happening in the automotive market. Let us go there.

When you look at the automotive market, Solvay is a key supplier of advanced materials that you find in a multitude of applications over there. You know that we also have a catalyst for emission control. We have highly dispersible silica for high efficiency tires. However, I am going essentially to focus on specialty polymers, composite materials opportunity.

When you look at the number, 2.4 CAGR in the next five years, you may say, 'Well, it does not look so exciting, frankly.' Now, if you go inside and you look what is behind this number, what is behind the automotive industry, it is clear that there, there is also another evolution, a technology shift towards cleaner technology, more efficient technology. This is driven by stringent regulation in CO2 emissions but also by shift in the customer experience, what the customer wants. If you look into hybridisation, if you look into electrification, the CAGR there expected is more than 30% in the next ten years.

If you discuss with an OEM, if you discuss with our customer – tier one and so on – you will realise that all the OEMs are working on a variety of platforms today. Internal combustion engine, it is not done. There is a lot that can be done to improve the internal combustion engine. There are platforms going into what is called the internal combustion engine plus hybridisation, electrical vehicle, electrification. We are in all these platforms and I will come back to position ourselves after having shared with you what is the opportunity.

Internal combustion engine, we can have up to 6 kilograms of high performance material today. To put this number in perspective, if you still have an old model that you bought just three years ago-- to me it is not old-- I keep my car for much longer. Well, this number is two times what was in a car three years ago.

Why? Because in order to make a more efficient internal combustion engine, you have to recover as much as possible of the high-temperature gas that exited the combustion chamber. You have to develop new technology like direct gasoline injection to inject the gasoline directly into the cylinder so having the maximum possible yield out of the gasoline. You have to reduce friction so you have absolutely to review all gear box transmission, everything. At the end of the day, you have to be creative, redesign the engine, downsizing the engine because you put much less material, so it is lighter. These are a number of technologies that are drilling this technology shift, driving this technology shift.

Why more high-performance material? Of course, if you have to deal with a higher temperature, if you have to deal with much nasty conditions for what is the gas or other stuff like this, you need to shift to a material that continues to be light, continues to give freedom of design to the OEM in terms of how to really downsize the engine or this means transitioning more and more towards high-performance polymers that are replacing metal or replacing less performance plastics.

Now, let us move into the hybrid electrical vehicle. In this case, it is even more significant because you have to put in the same space an internal combustion engine, an electrical engine, a battery side-by-side. You have really there to be inventive to use the best possible way this space. Whatever you do, you expose much more parts to high temperatures. It

means that you need higher performance polymer more and more. This is the reason why there is up two times more of high-performance material into the hybrid.

Then when we end at the end with the electrical vehicle, still there is up to 8 kilograms today of high-performance material, the core being the battery – and I will come back on the battery later to see the position Solvay is in this industry. I do not have the time to discuss about the huge opportunity that our thermoplastic and thermoset now composite plays in replacing metal chassis or bring in a new functionality in a car.

Long story short, again, we have a leading position there that is based on our portfolio and match the portfolio, everything you need for our customer, a toolbox that is leveraged with our deep technical expertise, our customer intimacy, and long-lasting strategic partnership.

Solvay positioned in all auto platforms

Now, these strengths are visible. How do you measure these strengths as really working? Because we are outpacing the industry growth by a factor of three at least. This will continue because we are substituting technology. Even if the cars sold are more or less I will say 2.4% more year-on-year, we are in much more cars. This is important.

Technology leader for mission critical battery materials

To finish the next generation auto revolution, let us so go into the batteries. What Solvay is doing in batteries. As you know, a lithium ion battery is composed by four components: cathode, anode, separator and electrolyte. Electrolyte, it goes in a way or another. It depends if you are using the battery or if you are charging the battery.

Anyway, Solvay is in three of these four key components. We are in the cathode. We are in the separator. We are in the electrolyte. Our materials are high-performance fluorinated materials. Fluorinated is important. I will come back about this.

What our materials do, they are enabling these three components to perform better and safer. Let me give you an example. Solef PVDF is a fluorinated material. It is a polymer. This is a binder. What does it mean? It is glue that keeps together the cathode. If the glue does not make its job, the cathode fails. If the cathode fails, the battery fails. Again, mission critical functionality. However, it is not just a glue. It is a polymer that has to resist incredible conditions in terms of chemical resistance, in terms of resisting electrochemical charge and has to keep adhesion. You want it to be the minimum possible because if you put too much of it, probably you have a very strong glue but you keep room of active material. You want to put active material in the battery to keep the performance.

The last, you need really to customise, to tailor this glue for each kind of cathode. The cathodes are many. You can have a lot of formulation of cathode, a lot of formulation of electrolyte and you have to do it for the right formulation.

I think you understand this mission critical functionality. This is what we are bringing there. I could make the same story for all the other fluorinated materials that are there. However, long story short, to develop, to make better lithium ion batteries, the only way is to increase the quantity of fluorine chemistry inside.

Now, when we discuss fluorine chemistry, Solvay is in fluorine chemistry since in the last 70 years. It is a long time. We invented a little bit this chemistry. We are in the battery for more than 15 years for now. These are qualities that together with our ability to leverage the

full portfolio of technology that we have and together with the intimacy with our customer, our knowledge in terms of application, this is what our customers are appreciating. This is why the major OEMs, batteries OEMs in Korea, in Japan, in China have specified our materials in their batteries. This is why we have decided, by the way, to continue to increase our capacity.

We just announced today an increase of 35% of capacity of PVDF for binder, for other applications in battery as well, to keep the pace. We started up a new plant in China last year. Now, we are again adding capacity, so gearing up a little bit the dynamic of what is happening there.

At the forefront of innovation for future battery

However, when we think about battery, we have also to think about the next generation battery. There is a next generation battery in the next generation auto because the lithium ion batteries are still really in infancy. There is a lot more that can be achieved thanks to a number of functionalities that can be put in the battery – increasing the voltage, transition to the silicon anode from graphite that is today inside.

Again, in addition to the products, the fluorinated products that you saw before, you see in the picture what we have launched to support this transition into the advanced lithium ion batteries. I just want to mention the fluoro-additives that have been developed for the silicon anode transition. This is a strong motivation for the industry because transitioning from graphite to silicon anode can improve the performance by a factor of 50%. So there is a huge motivation and we are there.

On a more breakthrough evolution, batteries one day will be solid battery and essentially eliminating complexity of separator, eliminating a number of other complexities that are in the lithium battery today. There, we are prepared. We have developed proprietary technology for making a solid electrolyte that can support the transition into the solid-state battery.

All in all, battery – and I think that you like numbers so go back to numbers – I want to give you some numbers. So it is the first time. A few years ago, three years ago, four years ago, the sales in battery for Solvay were in the range of few millions. Last year, we were above 50 million. You can see of course the progression. We have full confidence that we will be above €500 million in the next ten years.

The beauty is that our products are difficult to make, high barrier to entry bringing high value to our customers and they are high value for us as well. So this is a nice story that brings me to the conclusion.

Next-gen mobility drives significant growth opportunities in advanced materials

There is no doubt that aero and automotive are really great opportunities for us. We have strong commercial programmes in the pipe that are supporting our growth today. We have a tremendous opportunity in terms of supporting the next generation auto, the next generation aerospace.

However, this is 50% of the advanced material clusters. I could have talked with you about the exciting 50% part that we did not discuss about. I could have talked about the healthcare market, our haemodialysis membrane leading position, how this market is growing, how we

have there a leading position that stay with secular trends that are growing thanks to better access to wellness. I could have talked about electronics, staying in the auto. The auto is a sort of iPhone for wheels. There are a lot of electronics inside. There are a lot of advanced materials in what are the next generation touch screen and many other electronics. However, I do not have the time. Jean-Pierre said to me, 'Just stay there', but I would be pleased to exchange with you.

Now, let me end with on a personal note. I have been working with Solvay for 30 years. Many businesses, I have seen thousands of customers. I have seen thousands of revolution transition. I never have seen such big opportunities in Solvay. I never have seen that before. This is very exciting for me.

Having opportunity is great. However, it is not enough. Having the best portfolio in the industry, the largest specialty polymers range, it is not enough. If you do not have people that know how to use this tremendous toolbox – and we have really a strong professional team recognised by our customers that they can discuss in the same language with the customer, understand what the customer wants. However, this is not enough.

If you do not have engaged teams in addition to professional teams that really know how to work with the customers in intimacy and they bring what they want when they want, this is what makes me confident that the potential that we are showing there in EBITDA growth this cluster of 6 to 10% in the next year is reality.

I will be pleased to welcome you in the next Capital Markets Day. I am sure that you will be travelling much more Solvay advanced materials in the future. With this, I want to invite Vincent to give you what is exciting in advanced formulation, much more for sure. Thank you very much.

Advanced Formulations Improving Resource Efficiency

Vincent De Cuyper

Member of Executive Committee, Solvay

Preamble

Thank you, Augusto. I think Augusto has been very clear in showing brilliantly how next gen mobility is providing fantastic opportunities for Solvay to grow in advanced materials. So in 20 minutes, I will convince you that innovation in advanced formulation is providing as many opportunities by improving resource efficiency.

Unique provider of surface chemistries

But let us first set the scene of advanced formulation segment. In advanced formulation, we talk about surface chemistry. We are modifying properties of surfaces so that we can develop innovative tailor-made solutions to answer the challenges of the customers.

The key pillars of our business model are very simple. On one side, having at our disposal a broad range of technologies and continuously innovating to stay at the heart and the state of the art of these technologies. This requires customer intimacy. Customer intimacy at all levels: business, R&I, but more importantly also at shop floor level, what we call frontline customer intimacy. The third one is, we want to leverage Solvay's global outreach. That

enables us to grow and provide our solutions to our customers in new markets and new regions.

A few numbers, more modest than advanced materials indeed, but EBITDA is still above €500 million in 2017. EBITDA margin, 18% in the range of RPs and specialty chemicals. We want to expand it in the years to come by providing more innovation.

Important feature of the segment, cash conversion at 75%, above the one of the group at 68%. That is a nice segment where capex intensity is lower enabling us to grow and at the same time provide cash. R&I intensity 3% in the range of the group I would say. However, this reality inside advanced formulation; for example, mining and oil and gas are at 4% R&I intensity.

Resource constraints require more efficient solutions

Nice to say providing tailor-made solutions to our customers. Okay, what do you mean? In terms of resource constraint, requiring more efficient solutions. If we can say what we do for our customers in only four words, we **do more with less**. We do improve the production processes of our customers. We increase the efficiency of their assets. We increase the yields. How do we do that? By consuming less: less natural resources, less use of [fresh] water, use of energy and on top of that reducing the environmental impact of the activities of our customers.

The business we are talking about here today represents 42% of our advanced formulation segment. Of course, there are others where we provide innovation. However, why do we focus on these ones? Because this is where we can provide the highest added value to our customers. Why? Because what is common to these segments is that the operating conditions of our customer where our solutions apply are changing all the time: conditions in the mine, quality of the ore, conditions of the rock when you drill or when you frac. In agro, different crops, different source, all of that requires a lot of customer intimacy to constantly adapt and increase the efficiency and the value that you provide to your customer. That is why we are interested in these segments more than the others.

Strongly positioned in the mining industry value chain

Time to start with the first one: mining industry. A quick reminder, where do we play in the value chain? Of course, we are not a mining company. This is very CAPEX intensive. We are not what is called comminution in the mining industry which is in fact preparing the ore where you use basic chemicals. No interest for us.

We are in what we call beneficiation. Beneficiation is where you can really have action to improve the efficiencies or the processes of a customer by acting on separating the valuable part from the waste by increasing concentration, by increasing the selectiveness. However, this is very complex and we have a wide range of technologies because we are the leader for more than 100 years in that segment by acting on the main technologies which are used in that industry.

First of all, mineral flotation mostly used for sulphites, what do you do there? You modify the surface so that you can separate a hydrophilic part from a hydrophobic part and separate the valuable part from the waste.

Sometimes like when you have mineral oxides ores, you have to use different technologies. You can use solvent extraction. In that case, you modify the surface so that the part is soluble in a solvent and you can then extract it afterwards and separate it from the part which is not soluble.

We are also acting in alumina business, not really in all countries – out of China where there is a special process which is called bioprocess and where we have specialty chemicals that can be used for that process.

This is about the technology in the segment where we are acting. What about the end markets? We are selecting the ones where we can create value for Solvay and for our customers. We are not really interested in the iron market, although very big, because extremely commoditised. We are acting in copper, 60% of our business; alumina, 20% of our business; and other metals and minerals for 20%. This is where we want to play.

Why do we believe in that market? This market we do expect to grow at 3% a year in the next years. This market is very favoured by important mega trends, first of all, increasing metal demand. Copper is favoured by electrification. Alumina is favoured by lightweight materials. I do not speak about lithium and cobalt for batteries. Also other very important mega trends: ore quality decline, this is a major issue in the mining industry. The good mines get depleted. You need to open new mines with poorer ores to be exploited, much more complex ores. This is where we can provide added value.

In the same time, the industry is always searching for increased productivity and increased efficiency of the operations and on top of that, more sustainable solutions. This is where we can play.

Mining chemicals to significantly outgrow market

Nice to say that the market is nice but how can we win in this market? We focus our strategy on three main pillars: first of all, opening of new mines. This is a great opportunity to grow the business. As I was saying, ore is depleted, need for opening new mines. We have historical record to capture more than 50% of the business in the mining industry.

We also want to take advantage, to expand our business globally. We have activities to develop partnership in China, in Africa and in Latin America. To do that, we opened tech lab support in China. There is a new one as well in South Africa to support African future.

The second big pillar, new markets. As I was saying, we want to take advantage of opportunities provided by mega trends like lithium and cobalt in batteries. That is why we are developing innovations for these markets.

Indeed, innovation is the most important pillar for that activity providing constantly up-to-date innovative technologies either in the markets where we have a strong presence to increase productivity and sustainability or to develop our potential in new adjacent markets. This is why we believe that in this market, we will significantly outgrow the market growth in the years to come.

Electrification Supports Innovation-Driven Growth in Mining and Minerals

Innovation, can you give me some examples? Yes, indeed, I can. Electrification, major change for the mining industry as well. Think not only about the batteries but think about new ways to generate electricity: wind, solar. These require a new way to distribute

electricity. It is a major opportunity for copper. Copper is our main market, 60% of our business.

On top of that, electrical vehicles, we do not talk only about the nice plastics presented by Augusto. That copper in these cars will increase its presence tenfold in the next ten years. This is massive.

How can we provide innovation in this copper industry? I was mentioning to you, ore gets depleted. More and more, the new ores are extremely complex to exploit. Technically speaking, most of the time you mix sulphites and oxides. You have seen that you have various technologies. If you have various technologies, sometimes in fact you lose selectiveness. That is what we are working on: developing innovations to deal with extremely complex ores so that we can provide value for our customers to recover the maximum from the waste which is not the case today in these complex ores.

Also, we want to work in new opportunities, energy storage in batteries. Lithium: I do not know if you went to Chile on holiday or certainly you see some nice reportage on TV with this Salar at 4,000 metres, where lithium brine is just waiting during months for evaporation.

Solvay has developed a brand new range of solvent extractors and worked together with a technology company called Tenova – very important in the mining industry – to develop new brine technology to extract the lithium by solvent extraction reducing the time to hours from months. This is a change of paradigm for that industry that will come in the years to come.

I do not mention also cobalt. Cobalt is extremely scarce today. We have state-of-the-art technology to separate cobalt traces from nickel in very complex ores.

A leader in oilfield chemicals providing cost-efficient solutions for stimulation

Let us move now to the second major market, oilfield chemicals, oil and gas activities. Again setting the scene, we are acting today in what is called a stimulation segment: shale gas in the US. We have a small presence in cementing and production but the core business is about key technologies: friction reducers and rheology modifiers. This is where we can make the difference. We are the global leaders by far in these segments on the US shale gas market.

Why are we interested in that market? This is a nice market which is expected to continue growing at the range of 4 to 5% in the years to come. Important mega trends, the switch from coal to gas, but behind that is the use of gas in downstream industries, more than $200 billion invested in downstream petrochemicals since 2010. On top of that, you see very important drivers: drive for productivity and efficiency. You remember at the beginning of the shale gas industry, everybody was looking for more production, more production at any cost. Went to the downturn, want more efficiency, better solutions.

Reality today is the industry wants more productivity and better efficiency. That is where we play. And on top of that, there are really long-term trends looking to reduce fresh water consumption. This is one of the issues of the shale gas industry in the US, and looking in general for greener solutions, lowering the impact on the environment.

Oil and gas pillars for growth

Nice market indeed. How can we win? Again, we have extremely focused action plan: three pillars. The first one, as I was mentioning, is innovation. During this change from boom to

downturn and back to boom in the shale gas industry, we have gained significant market share because we have been agile to understand customer needs and to adapt quickly to their needs.

One example of that is what we call the new sales ratio, which represents new sales having less than five years' existence in the portfolio. It was already high at 30% in 2014. It has nearly doubled in 2018 showing how we adapted to the needs of the market.

This is the second pillar: understanding customer needs. We develop this customer intimacy by having a really strong customer model, particularly in the US, with three main tech labs which are supported by a variety of customer application labs in all major basins in the United States. We try to build on enhancing this customer intimacy by working today with the opportunity provided by digitalisation.

We work for the time being on increasing that relation on supply chain: logistics on one side, inventory management on the other side which are major issues in the shale gas industry.

Final point: it is a bit medium term but we continue to work on taking advantage of Solvay and expanding in new geographies providing our technologies to new regions. We work in China. We work in the Middle East. We work in Latin America, in Argentina in particular. These are partnerships which are not yet fully deployed, under negotiations. However, we are preparing ourselves. We have already manufacturing capabilities in China, built R&D resources to support the customers in the future. This is why I certainly believe as well that we will outgrow the market in oil and gas in the years to come.

Water reuse and recycle supports innovation-driven growth in oil and gas

You talk about a lot of innovation. Nice number, 60%. Okay, give me an example. Well, in oil and gas, they look for a greener solution. I was mentioning you remember at the early stage of the shale gas industry, they were drilling mountains of wells vertically, very simple new exploits. Then they came and said, 'No, no, no, we need to reduce the cost.' Today, you have the same level of production with half of the number of rigs because new technologies have been deployed: horizontal drilling and more and more complicated horizontal drillings by increasing the number of stages to frack the rocks horizontally.

What does it mean for a solution provider like Solvay? You have increased pressure very much to crack the rocks so far. Also, you have a problem with the proppant. The proppant is the sand that you use to break the rock. You need to use much more proppant. If you use much more proppant, you will need to use much more water again otherwise, you plug again. How can we answer these challenges for our customers?

On one side, we have deployed a brand new range of polymers which enable to make this proppant as efficient at a much higher concentration and stable in the slurry enabling to reduce the use of fresh water. In the same time, we developed new friction reducers which enable to reduce the pressure that needs to be used in this drilling and enabling a new range of friction reducer to recycle a part of the water. That is what we call salt-tolerant friction reducer. This is also a massive opportunity for us. You need to know that today, only half of the wells in the US are partly recycling water.

In all these projects, we are at pilot stages but we develop that with state-of-the-art companies like Halliburton. This is what we do in oil and gas. However, okay, we do

something else. We are acting in a variety of markets, as explained by Jean-Pierre earlier. I will give you just one example how we can provide innovation in other segments. I selected agro, but it could have been home care, personal care, coatings or industrials.

Innovating to solve agro industry's greatest challenges

In agro, also looking for greener solutions. You remember, we had developed a technology called STARGUAR to have a kind of anti-drift, so that you will reduce the loss of herbicides when you spray on the crop and contaminate the soil. In the same time, you will see in the market that there is a surge for a new kind of herbicides. We are providing adjuvants and formulations for these herbicides companies. So we had to adapt totally.

We developed total brand new built-in solutions by combining these new adjuvants and formulations for this new range of herbicides and adapting our STARGUAR technology for anti-drift. So again, a nice example how we can adapt and follow the customer needs in a market like agro.

Resource efficiency drives significant growth opportunities in advanced formulations

Time for a conclusion. I tried to show you that, indeed, resource efficiency is providing significant opportunities for advanced formulations. Why do I believe so? Because mega trends are there in all the markets where we are present. Increased demand and I gave you the example of gas, copper, alumina and so on. Secondly, continuous surge for increased productivity, increased efficiency of the processes for the customers. Finally, always looking for greener solutions. Everybody is looking for that.

This is not enough. As Augusto was saying, you can be in the right markets but what do you do? Solvay is very focused in what we do. We know how to win. We have the teams to win. We know where to play. We need to provide continuously the state-of-the-art technologies and continuously innovating. That is what we do in our markets. We need to maintain and develop that customer intimacy at all levels: customer business level, R&I level, frontline support to our customers.

Finally, we really can leverage Solvay as a group to develop opportunities in adjacent markets and also in new geographies. That is why we have the same confidence in advanced formulation as Augusto in advanced materials. I think as a COMEX, we all share the same that indeed we have fantastic EBITDA growth potential as well in advanced formulation. We estimate it to 6-10% for the years to come.

This being said, I leave the floor to Pascal who will talk to you about soda ash market.

Performance Chemicals Soda Ash Market Update

Pascal Juéry

Member of the Executive Committee, Solvay

Opening remarks

Well, thank you, Vincent. That was very impressive. I am afraid I have a bit of a different story to tell you.

The conversations on soda ash have been for many years dominated by negative news flow and especially the fear created by the build up of capacity in Turkey. I am afraid that now, the capacity hit the market. It is largely behind us. As we kept saying during all these years, actually, it had very little impact on our activity and profitability. I am going to try and explain to you why and why we look at this market with a lot of confidence going forward.

Market leadership solid cash generation

First, a snapshot on performance chemicals. Performance chemicals are a resilient cash-generating cluster for Solvay, soda ash being the majority of it and hydrogen peroxide being the other very strong component. A very high cash conversion reflecting the nature of these businesses, high margins. Research and innovation does exist in these clusters. However, the aim is to continuously improve our competitiveness, productivity through process and technology improvement. This is really the name of the game in these markets.

Balanced Soda Ash Market But Expected to Tighten

Now, I am going to focus on soda ash itself. Well, the truth is when the Turkish capacity came to the market, it came in stages. It did not come on one go which means these natural growth of the market plus some supply reduction or disruptions in some part of the world have totally eased the absorption in the market. It means as I speak even in 2018, we are running our plan flat out and sometimes are struggling to meet customer demands. It means really the Turkish capacity absorption is behind us.

Not only that, if we look forward and if we look at the demand development that is very, very regular and resilient as I will show you and if I look at the project pipelines to build new possibilities of supply, it is very, very clear that the market will tighten. The supply will be inferior to the demand growth in the next years which means the name of the game for us is also after a few years where margins have been compressed, not very much, but will be a bit of a squeeze with energy cost increase and as well slight price erosion. It is time now to recover the level of margins that can guarantee for the industry future reinvestments.

In the meantime, we have not remained idle. We have worked relentlessly on competitiveness starting six years ago to prepare this market entry. We have changed totally the competitiveness of our main plants. We are continuing to do this.

Market expected to tighten

On the left part of the slide, you have the soda ash demand. To make a long story short as you can see, it is a very resilient and regular demand: the last couple of years approximately 800,000 tonnes being created in terms of demand. We expect this secular trend to continue. I checked actually this curve going back 30 years ago. It posed to be extremely solid.

What is interesting is what you have on the right-hand part of the slide. You can see the global utilisation rate of the industry, which actually remained extremely high even with the supply addition of Turkey. It was always a balanced market.

However, what is interesting is, if you remember 2014 or 2016, this was really the peak time for soda ash. What I am saying is, we are going to retrieve this global utilisation rate starting 2019, 2020. So the story is pretty clear. The market will tighten. Price will probably increase and we are very actively promoting this price increase for months now with our customers.

Cost competitiveness key success factor

Now, let us look a bit about Solvay assets. The first picture I am giving you here is a picture from three years ago where we already had the first impact on our competitiveness plan. What you have in this picture is everything that is striped is natural soda meaning it is mined but typically mined in a place that is far out from the consumption meaning you have a significant part of the cost to ship the soda ash where it needs to be shipped. In plain, you've got the synthetic process of which of course Solvay is a leader and the inventor.

So typically, you see that our assets, we are sitting in 2015 already in the best place of the cost curve with our mine being probably the best of the Green River Basin. You see that our world-class synthetic plants, our three plants from South Europe, while seated in the water are also extremely well-placed to respond to the world demand. We have more local assets sitting within consumer basins in Northern Europe which are less competitive but very advantaged in terms of logistics.

Where are we now post the capacity ramp up in Turkey? The new capacity in Turkey is here. It found its place here. This is a new mine. This was the first mine, Beypazarı. This is a new mine, Kazan.

What is interesting to note is actually that the best Solvay assets which happen to be at this time European, South of Europe world-class plants are actually more competitive when I look at the FOB cost than this Turkish mine. The Green River Basin has continued to increase competitiveness at the same time. However, logistics costs in the US have been going up.

To make a long story short, I think there is a misconception in this market that natural is always cheaper to make. It is cheaper to make. It is more expensive to ship. Synthetic is more expensive to make but it is cheaper to ship. It means Solvay is present in both areas and well-placed of course to take advantage of the current market situation.

Leadership positions in performance chemicals support growth

As a conclusion, just like my colleagues, I feel very confident that we are going to deliver some growth in this market segment. Actually, I am confident that we will be on the high side of the range I am presenting today.

Key trends, very resilient demand. These are not cyclical businesses. I think that is also a misconception that goes a long way sometimes in the market. By the way, this is not only true of soda ash. This is also true of peroxide for which we are also the global leader. Peroxide is about disinfection. All the end markets are consumer products at the end of the day. That is also a very resilient market so solid market.

Solvay has been extremely active to invest in our technology, to improve our process sometimes rationalising our footprint if we need, work on our cost base for every opportunity. Remember that we are the inventor of the soda ash process, 155 years ago, but we still have a lot to improve when I look at the pipeline, and that is what we have been doing, and we keep doing this going forward. Of course, the whole of this cluster is to generate cash, so we are looking at every possible way to increase the cash conversion of the business.

With that, I hope you will have concluded with me that it is time to forget a bit about Turkey. It is time to look forward at the business of soda ash with a very positive outlook. Thank you very much for your attention.

Positioned for Future Value Creation

Karim Hajjar

Chief Financial Officer, Solvay

Financial value delivery

Beauty is only skin deep. The Temptations sang that song; they had a hit in 1966. I happen to disagree with the title of that song. I agree with their lyrics because they talk about inner beauty. What have we been sharing with you so far today? What did you hear, what did you feel from Augusto, from Vincent, from Pascal? It is our passion of what really is the inner beauty of Solvay. With your permission, I would like to continue to share with you my passion and my conviction of what is really beautiful about Solvay's financial performance. I will do it in three phases. One, a brief retrospective. Two, I will look at the ground we are standing on in terms of our capital structure, our cash flow generation. Then importantly, I will try and bring everything together in terms of the future potential that we have to grow value in Solvay.

Two years ago, I shared with you the financial value creation dashboard, where we compare Solvay, which is the blue line, in terms of profits, cash and returns. We need to be delivering on all three in order to really create financial value. Two years ago, I compared us with the median of our peers. These were the grey line, the diversified peers. Today, we are adding another line which is amber, and these are the specialty companies. The names are specified here. As you look at this, what kind of insights come to you?

Profit

One on profits, and Jean-Pierre has mentioned it. Our EBITDA margin is absolutely in line with specialties and significantly ahead of our diversified median of peers. These are facts. If I looked at EBITDA growth, the conclusions would be very, very similar as well, over that timeframe. How did that come about? Jean-Pierre has given you an indication. It is about pricing power, particularly in the first two to three years. It is about consistent-quality volumes, and throughout the period, it has been underpinned by excellence. I am going to bring back and touch on some of those themes in a few moments. So from a factual point of view, our profits are in line with the specialties.

Cash

From a cash conversion point of view, which is a helpful indicator of operational cash flow – it is EBITDA, less capex divided by EBITDA – Solvay stands up commendably in the context of the medians of both sets of pairs.

Returns

On the returns, in the same way I mentioned that to you two years ago we were the laggards, we are proud of the fact that we are improving, and the returns that we are looking at here are significantly the replacement cost of capital. Think of wearing a backpack that has €18 billion as weight, so it is delivering cash improvement year in year out: takes some doing. The good news is that we are now in the value creation zone. Our CFROI exceeds our weighted average cost of capital, and we have not yet finished our journey; I will come back to the future, but we intend to continue to close the gap with the specialties. That is part of what I see and being very, very attractive in Solvay.

Strong operational cash flow

It is about cash. The reality is when I listen to many of in the room, you tell me correctly, that our free cash flow to Solvay shareholders is somewhat lower than our peers. Factually, I would like to just agree with you. If I then decompose it and say, well, why is that? Where does it come from? Is it profits? I would suggest you no, our EBITDA margins, our EBITDA growth are very much in line with all the peers you can choose to throw at us genuinely, as a medium, so we know it is not profits. Is it that we are investing too much? The answer is very similar. Our capex intensity is very much in line, but I will tell you a bit more on that looking forward, but our capex is very much in line with our peers. There is one thing here, which is where our provision is, and this is where I would say – and I will give you a bit of a zoom – but our legacy, our history means that we have to pay quite a lot more cash, in fact, more than twice most of our peers, to service our historic legacy provisions. Woking capital, Solvay's performance consistently has been in the mid-teens, many of our peers are in the high teens, low 20s. That discipline has certainly not been a feature in terms of the cash flow performance. It is very, very strong.

Financing payments: we have more leverage than many of our peers. It makes for an efficient capital structure. Those financing charges have been relatively high but are reducing as we continue to deliver.

These are the key features of Solvay's cash flow. If you feel interested in understanding why is it that Solvay's cash flow does not quite stack up similar to others, it is really about provisions and financing.

What do I mean by provisions? I am talking of pension liabilities, I am talking of environmental liabilities, and that is what consumes €400 million a year of costs, of cash out. As a responsible corporate citizen, we honour obligations, and we service those needs. Many of our peers were created by entities via a state or multinational, where the liabilities were retained by the parent entity. Solvay with 155 years of history has those obligations and we just manage it. It is not good, it is not bad, it is part of us managing the business. When we look at the cash, our reinvestment profile, we very much take that into account.

Legacy obligations funded

As I look forward, that €400 million a year will begin to go down in four to five years' time. We can anticipate a reduction. As we look at that cash flow, the good news is if I leave all other assumptions unchanged, mortality tables, inflation, etc., we are deleveraging those provisions by about 0.1 billion a year. So ten years from now, if I were to stand before you, those liabilities, all of the things being equal, these will be €1 billion lower than today. That is part of the quality that you need to take into account when you look at the cash flow of Solvay. Now these liabilities are net present values. They are discounted over time. What does that mean? It means that if interest rates go up by 1%, those liabilities go down by €0.7 billion. Again, it is worth factoring that into our understanding of Solvay's balance sheet: we do.

Capex discipline to continue

Capex: these are facts before you. We have been reducing our capex over time having deliberately decided to invest well to position up for the growth and the quality of the growth that Augusto and Vincent have described to you. If I take a step back and share with you

what is the philosophy, how do we manage our capex? It starts with, we look at the envelope that we believe the business needs to fuel its growth, to maintain its industrial infrastructure, we do not take shortcuts. We like efficiency, we have to maintain that infrastructure, and we ought to grow. Once we decide on that envelop, we then say, 'Okay, the vast majority needs to go fuel our growth in our growth clusters. It makes sense.' Having established that from a corporate capital allocation point of view, we then make sure we have the right level of risk and return. The return is 15% IRR. It equates to more than 20% return on capital, from an accounting point of view; it is very attractive.

I also talked about risk. Jean-Pierre mentioned climate change. We impute the cost of CO_2 for short term projects at 25 years a tonne. That is a way to make sure our capital allocation is coherent with our positions on climate change for example, on sustainability. That is key. That discipline is an element that we believe is fundamental to go forward in Solvay. Three years ago, we were very mindful in adding debts to our balance sheet to make the acquisition of Cytec. In doing so, we were very determined to make sure we reduced the leverage. The facts are that in a relatively short timeframe, our credit rating has improved, our leverage has reduced. Many of you ask me, what is your target EBITDA, net debt to EBITDA, and I say I can give you a number, but it is meaningless, because you can look at that debt of €5 billion, do not forget that €4 billion of debt-like obligations as well, which is why Solvay has its own modelling capability that mirrors what SMP and Moody's do to make sure all key decisions are influenced by the credit rating impact of our strategic moves. That is how we manage the business.

Improved credit strength

As I look forward, I have some good news, which is that we have an expectation that the financing charges presently of €0.25 billion will go down by 20% to 25%. How? One, continued deleveraging. Two, optimisation. What does that mean? First of all, I would like to share with you the fact that hybrids, whilst you pay a premium for it, they really are a permanent part of our capital structure, and they have created value, by minimising EPS valuation, fundamentally. What we are looking to do is to work constructively with rating agencies to seek ways to modestly reduce the amount of hybrids on our balance sheet, which again, over time, we are confident will create a lot more shareholder value as well, by reducing financing charges. They are the main two levers.

Potential for superior growth

As I begin to look forward a bit more, as you begin to summarise a lot of what we really think is beautiful under the lid of Solvay, from Augusto, from Vincent, the strong competitive position, we have a formidable industry leader in soda ash. This is what you get, and mechanistically, if you did a mathematical average, you get to 6% to 9% for Solvay as a group. It comes from leadership positions in growing markets, it comes from technology innovation, working really well with customers. There is more. I have highlighted that historically, we have delivered a lot on excellence, and it has helped to underpin our growth. As we look forward, we are going to continue to do that, and some.

Continuing the transformation

First and foremost, we talk about customer intimacy. What does that really mean? For me, it means being obsessed with our customers. It means investing and training with our frontline

professionals, key account managers fundamentally knowing that everyone in Solvay is behind them. We are giving them more training, more responsibility to mobilise people within the businesses, functions in the centre, RNI, mobilise Solvay to make sure we can win competitively. It sounds easy, it takes a lot of courage for somebody to all of a sudden say, 'I am going to mobilise people in Solvay to help me win for my customer.' That is very much part of the cultural transformation we are looking to do.

Many people have been talking about digital. We have not made a big point of it because we decided two/three years ago not to create a big centralised digital initiative. What we decided to do is to trust our leaders in our businesses, in our functions, to say, 'Try things out.' We had well over 100 different proofs of concepts in the last three years. People who try things out, and it is wonderful. Wonderful to see that some of them did not quite deliver, and we learned, some delivered quite well, and we were interested, and a few things are working so well, that we are now looking to mobilise and industrialise and to really scale things up, and it is three particular areas.

One, data analytics. This is about introducing algorithms into the way we run the plants, to help the operators essentially improve yields, improve quality, reduce waste, reduce cost. It really is wonderful. If you come to a Solvay site, you do not just see one plant, you see many, many distant plants, and they are interdependent.

We also have asset optimisation, where we look at plant automation, APC advanced plant control, fundamentally looking to connect and reduce bottlenecks, improve yields, and essentially defer the point at which we make investment decisions.

Digital workforce is another key plank. We are giving tablets, digital devices to our operators, our supervisors, and that enables them to connect with people in the control room, with other sites, give them all the information, and it facilitates collaborative working, to really become much more effective. These three elements will transform our operational effectiveness. We will build on the excellence that has delivered significantly in our past few years.

Back in March, we announced a significant cultural and simplification program. Some of you were surprised that we did not talk about it in the context of a cost reduction. We are not shy of saying this is a cost reduction, when that is the case.

It was not a cost reduction, but it has cost reduction as a consequence. We gave it a number, it was €150 million. Where does it come from? We are essentially touching many, many functional roles in Solvay, redesigning them to make sure they are much more oriented towards our frontline. Our professionals who are working with customers, 2,000 jobs are being impacted, 700 roles will be suppressed over the next three years. That is going to yield half of the cost reduction of 150 that we highlighted. The other half is going to come from being much more focused in consuming resources, in spending to meet the frontline needs of our customers. I would say it is about being obsessed with helping our customers win, being absolutely determined to equip our people, our professionals in the frontline to win. That will also yield a reduction of €75 million. These are the elements that will underpin and accelerate the growth that you heard from each of our clusters. It is about upgrading and doing more than what we have in the past.

More growth potential for more value

If we just focus on EBITDA growth, and not look at returns, and not look at cash, we know that value may not be created; history tells us that. If you look at this chart before you on page 54, you see the EBITDA growth potential that Augusto, Vincent and Pascal have expressed with you, and on the horizontal axis, you see the returns as of 2017. Since then, performance chemicals has moved slightly to the left because we are going through this inflection point much better than we thought, but it has gone back slightly. Advanced formulations have moved quite significantly to the right because it is now exceeding the weighted average cost of capital. Solvay as a group as we go forward will be delivering, has a potential to deliver between 6% and 9%, but we are also very, very focused on making sure we deliver an increase in our returns as well.

Superior free cash flow to shareholders growth

How will that profit growth, that EBITDA growth, translate into cash? This is a very simple bridge. So far as capex is concerned, we expect to be very focused and very disciplined: one to 1.2 times depreciation should be the expected range of reinvestment. Payments on provisions, hopefully you understand it better today, but fundamentally, that will be stable in the short-term and in the midterm will begin to decline. That is a big tick; it will help to alleviate some of the cash drain, if you like, on Solvay's final cash. Working capital is top quartile, and it will remain to be the case.

Financial charges already indicated will decline, and that will contribute. Finally taxation: two years ago, I indicated around 30%, today, we are near 26%. The combination of all of those factors means that we will deliver free cash flow to Solvay shareholders, that is after financing costs of between 10% to 15%. That will do two things: give us the ability to fund a superior growing dividend, secondly, contributes to continued deleveraging. Very, very virtuous.

Absolute reduction in GHG emissions

Now, two years ago, we also said that value creation in Solvay is not measured just by financial metrics. There are critical extra-financial indicators to the planet, people, society. We gave you an indication of what we were committing to deliver. We are not spending a huge amount of time on that today, but I do want to reassure you that we are committed, we are on track, and we will continue to deliver on all of them, with one particular highlight which is, we realise with the benefit of hindsight that we have significantly overdelivered on our greenhouse gas emissions. We had committed to reduce our intensity of greenhouse gases by 40% between 2016 and 2025. Two years into it, we are at 32%. Today, as Jean-Pierre mentioned, we are raising the bar, we are going to go from a relative measure to an absolute measure, one of the few chemical groups that is doing that. It represents a significant change.

Now, why are we doing it? We are doing it because our customers appreciate it, expect it increasingly, that is a good thing. Were doing because it makes sense, and because it really matters to everyone of us in Solvay as well; it really matters.

How are we going to do it? It is about focusing on energy efficiency, about energy mix. It is about improving our processes, it is about innovating. We have plans, we have projects, we will be investing up to €0.25 billion in the next seven years to realise that goal. Those investments will not achieve the 15% IRR that we normally expect from growth, but they will

deliver as a portfolio return in excess of the cost of capital of the group. What is very pleasing for us is that to deliver growth, without harming the planet and actually being positive to the planet is a good thing to do, but fundamentally as a CFO, I see it as a very big plus in reducing the strategic risk profile of a business like Solvay.

Potential for future value creation

In total, we care about value creation. Profits, cash and returns. The six to 9% EBITDA growth equates to 10% to 15% underlying EPS growth, organic. Cash, 10% to 15%. Returns: we are on track to deliver 90 basis points between 2016, '17, and '18. We will repeat that for the next three years. Being in value creation zone is good, the best that we have had in more than a decade, we now want to extend that, that is key. I have highlighted our commitment to improve on impact on the planet, and de-risk Solvay strategically, and fundamentally every one of the other objectives we are today reconfirming as well.

With that, I hand you to Jean-Pierre.

Closing Remarks

Jean-Pierre Clamadieu

Chief Executive Officer, Solvay

Continue the transformation of the culture to support growth

Thank you very much, Karim, now just a few words to conclude. We have tried to combine you know a relatively short period of time, a lot of messages. Something which is incredibly important for me is the fact that we have started a very significant transformation of the culture of the group to support growth, and we have done last year a couple of exercises in this direction. First, simplification. We have made a number of very significant simplifications in the way the group operates. You have heard some earlier announcements, or you remember some early announcements that we have made during the first part of the year. These announcements and the social procedures that we have to go through before implementation, we are all closed during the first half, and now we are putting in place this new and simplified organisation.

We are also putting a lot of emphasis on the need to focus on customers. We do believe that this will be the way to maximise the growth potential. Frankly speaking, we are doing, we are doing already very well with a number of customers. I was in Farnborough in early July where we signed a number of contractors Augusto mentioned, and the feedback I got from Safran, from Airbus, from Spirit about the ability of Solvay to come up with breakthrough solutions, to come up with long-term commitment, the success story of the LEAP engine is something which took ten years before arriving at the point where we are. This shows that we have the ability to focus on customers and win. The feedback we are getting from Apple who is still a very important customer of ours, the feedback we are getting from Freeport on the copper mine side, I was visiting one of their operations at the beginning of this year. We have very good models. We need to make sure that we focus on customers across the board, and really this transformation of a culture of Solvay, from a culture we chose to be very much industrial focused. We build the capacity, and when we have the capacity, there will be

customers who will take our product, to a situation where we are developing solutions. This is extremely important, and we have made some major steps.

By the way, something that we have not otherwise seen today, but I want to make a comment on that. We have today a great line-up of global business unit leaders. You have heard that we have made some changes recently as Emmanuel Butstraen was moving, and he has now a new challenge within Firmenich. We took this opportunity to bring Mike Radossich, our Cytec guy as head of Novecare. Chen Pu has done a very good job driving the oil and gas business over a crisis and emerging more stronger. He is now in charge of technology solutions. If I add these two guys, Mike Radossich, Chen Pu to Mike Finelli who is now the successor of Augusto in charge of specialty polymer. Carmelo Lo Faro who is the head of our composite business. Christophe Clemente who is the head of the soda ash business, and I can name a few others, we have an incredibly strong line-up of business guys who are not here today because they take care of the business, but this is very reassuring. Frankly speaking, I think we have the best guys in all this position. As you have seen, we have also a very strong climax to help support the next year.

Overall, I think that Solvay today is a very strong platform which is ready for significant organic growth in the next few years. This is obviously true due to the quality of our portfolio. This is true because of the culture that we have been developing, and this is true because we have an innovation engine which is working very effectively, and I do believe that as we are demonstrating now in 2018, we will be able in the next few years to continue with strong volume growth and cash generation, and the objective is to increase the return to shareholders, and I think this is probably a pretty obvious conclusion.

Ready for a great run led by a new CEO

Solvay is ready now for a great run, and yes, indeed, it will be led by the new CEO, who will come pretty soon, and will be supported by the teams that you have heard today. So, this is what we wanted to share with you, and I guess we are ready now to spend a bit more time in a direct interaction with you during this Q&A session, and I will let Jodi introduce the Q&A as we prepare the stage. Jodi?

Q&A

Jodi Allen: Thank you to all of our executive committee members for their good presentations today. My name is Jodi Allen, and I am part of our investor relations team, and we hope we gave you a little bit more insight today on why we are all so excited about our future, and shortly, you will be able to ask your questions.

Tom Wrigglesworth (Citi): Thanks very much for your presentations. Just looking at the EBITDA forecast that Jean-Pierre, as you mentioned, about organic growth, could you give us a little bit of a colour by the three main segments as to how much is reliant on effectively improvement in mix versus volume, organic volume growth, underlying those EBITDA targets. That would be very helpful, thank you.

Karim Hajjar: I think I will give an overview, and then perhaps my colleagues can add in. I think fundamentally, I expect to see significant improvements in mix by virtue of the markets that we have highlighted. Two thirds of what you have heard today, in terms of our growth segments is what you have heard, so they are likely to outperform and therefore improve the

mix, that is a key piece, and there is a very strong underpin on the transfers of the excellence, digital, etc., that I talked about. But beyond that, perhaps Augusto you can add something.

Augusto Di Donfrancesco: Yes, essentially from what I said, we have a lot of new innovation coming out from the pipelines, this will improve the mix, and also, strong volume growth, as I said in the technology shift that we discussed today, the volume, the loading in terms of our products will increase, so volume growth mix, and of course, we have to continue to improve in our plants. Even if our margins are high does not mean that our plant has to be efficient as well.

Vincent De Cuyper: Maybe the same kind of comment as Augusto made, I think in the advanced formulations, mostly based on innovation, volume growth, while maintaining pricing power. We can increase the efficiency for our assets, so very limited new capex to sustain that growth in the future. Easier for performance vehicles, I guess price, price, price, cost, cost, cost, and a bit of mix, okay, a bit of mix, because we are going upmarket for oxide, we are going upmarket in sodium bicarb, but I guess price.

Augusto Di Donfrancesco: Now, maybe just a word of caution, because the definition of mix could probably vary from one person to the other in a context where what we expect to see is new product going for new application. So is it volume, is it mix, I think there could be a debate there.

Peter Clark (Société Générale): I have two questions, if I can. The first one is reading into the lines of the chairman's statement, clearly the new CEO has been signed on, knowing there is a strategy, signed on to that. I was just wondering about the targets, because clearly he is coming in pretty soon.

The second question is for Pascal and it is about performance chemicals and the target there. At the lower end of the EBITDA growth target of 2%, on my numbers anyway, you are not recovering all of the soda ash hit. Now, given you are seeing pricing hopefully improve into next year and presumably margin, that to me seems pretty conservative. So, just if you have a comment on that, that would be great.

Jean-Pierre Clamadieu: On the first part, I am not in charge of my succession process, which is good governance, this is really Nicolas Boël, our chairman, who is responsible for this, I have been pretty active in supporting the board and the nomination committee, and yes indeed, there have been extensive discussions between the candidates and the board regarding the strategy. Now, the new person will have to come onboard and solve all of this, but yes, I think Nicolas Boël's statement at the beginning of this meeting shows that there is a strong backing of the board on what we are presenting to you today.

Pascal Juery: No, and I think I said during my presentation that I was confident to hit the upper range of the numbers, and I quite agree with you. I mean, although the hit we took was less than what we presented to the market. If you look at performance chemicals in 2018, actually it does a little bit better than expected and guided, but yes, I stand with what I said. I am confident that we are going to hit the upper part, and I agree with your statement.

Martin Rödiger (Kepler Cheuvreux): Jean-Pierre, you mentioned at the beginning that 8% of your portfolio is challenged. Maybe you can talk a bit about that. How do you see changes to dispose of these assets or do you want to dilute that with stronger growth in your growth activities, or do you want to fix that business?

Jean-Pierre Clamadieu: Clearly, I am probably not in a position to make a statement regarding the midterm strategy of the company, but I think that is a little bit all of what you have mentioned, our businesses. I mean, besides the big transactions, we have made a lot of adjustment here and there, so that is probably businesses which are still candidates to be divested, but a number of businesses where I think there is the ability to fix things. When we say that this – some of the business are in a challenged position, probably a very good example was isotope business, doing reasonably well in terms of performance, even very well until we divested it. At the same time, serving the tobacco industry for us, was seen as a sign by the business was a challenged business. You have probably to disconnect a bit more the financial performance from the position versus the sustainability criteria, so that is probably the way I would look at that, but I think we have done the major adjustment in terms of portfolio, but we need continuously to look at the positions of our businesses, and act to make sure that indeed we continue to drive the portfolio in the right direction.

Karim Hajjar: Maybe just building on that, but you recall that in 2016, we said 60% of our portfolio is going to be solutions, we are already at 50%. Innovation work with our customers is how we are going to move that forward, so I would focus on the 50 going to 60. Part of that will come from the challenge becoming smaller as well, during that journey, working with our customers, rather than M&A, let us say.

Augusto Di Donfrancesco: If I can add, all practically, all our investments in innovation today are in sustainable solutions, so it will be a dilution anyway of this part, because all our efforts are really in sustainable solutions, as we presented today.

Wim Hoste (KBC Securities): I have two questions, please. Maybe first on composites, it was presented that you are targeting for automotive composites to get about three times the growth of the markets, but for aerospace, no precise numbers were shown in the slides. And we know for example that the LEAP engine is going to ramp up from, I think it was a bit of 400 to over 600 planes or engines in the second half of the year. What does that mean for the anticipated growth in the aerospace part of your composite business? Can you offer a bit more granularity on that?

The second question is on raw materials risk for composites, especially is there any risk of getting margin disruptions?

Augusto Di Donfrancesco: First, okay, I did not give a number, and normally, we do not comment for each segment; we give the growth for the whole cluster, but for sure, composite materials, the specialty polymers are in the high part of the growth. It is more in the range of 10% than 6%, okay, and we are seeing this really supported by strong commensurate programs, as we said.

The second point was related, so increase in the raw materials price. Well, first of all, we have a long-term contract, with long-term programmes with our customers; when we do a contractor programme, we secure all the supply chain, so we are not exposed on this part. The rest, frankly, this is not a key topic for this industry, for us, at least for now.

Jean-Pierre Clamadieu: Maybe just to comment a bit more on the first part. What we need to keep in mind is that we are associated with programmes which are still at the beginning of the ramp-up curve. LEAP engine is one of them. I mean, when we look at the opportunities for LEAP engine in the next five years, it is very impressive. In fact we are in a situation where plane makers are asking Safran to produce more than what they can do today, and that brings a very significant increase. F35, we are still also at the beginning of the curve. The former Bombardier C Series which is now the Airbus 200 Series will see also significant opportunity, so these are programs where we are fair in a very solid position. Safran, we have just renewed our contract, which gives us a lot of visibility in a position where we are the sole supplier of composite components. We are probably in the best possible position as far as the current programs are concerned, we have a 777X which will start in 2019, 2020 where we are going for the first time in a structural part with Boeing, so that is good.

Then we have all of the challenges of the next-generation platforms, 2025; it might be a little bit long-term for you, but where we see a lot of opportunities, and the most important opportunities will be on single-aisle. Today, single-aisle are not using large volumes of composite. Probably the next platforms being the middle of a market with Boeing, being other types of development with Airbus, are likely to use much more composite, and then it will be a big boom in the use of composite for the Aerospace industry, and we are really getting ready for it. Today, getting ready means being part of a development process with these two larger OEMs. Clearly, a lot of opportunities, short term with existing contracts, midterm with expected future development.

Jodi Allen: Next question, please.

Andreas Heine (Mainfirst): Could you outline a little bit more in detail, maybe also quantifying how much the synergies between scientific and the specialty polymers were, so in using materials from that material and what it means for now and for our future growth.

Then secondly, in automotive, I think you had very high ambitions for composites in automotive, but the automotive industry is not that excited short term or long term. Maybe you can outline a little bit what is realistic to assume that that has taken up in new models?

Augusto Di Donfrancesco: Automotive of course is a little bit more a longer-term development. Thermoplastic composites is the key for them really to go into single auto. As I said, we are really accelerating development of thermoplastics, mainly has been done in the last two or three years compared with the last year, so the recent acceleration. There is clearer interest that continues to be there, and the strategic partnership that we are today doing with the big tier ones in automotive, like Faurecia, as I said, but this will take time. It is not for next year, it is more in the next five years plus, I would say more five to ten.

What I said is that, anyway, thermoplastic composite is gaining momentum in other markets that will be much faster than automotive. And I introduced the case of the oil and gas, where in offshore exploration, there are very complex pipes done with a multilayer of metal. By the way, we have inside the rises today our PVDF an integral part of it, well, a number of these layers in metal will be substituted by thermoplastic composite to make these long pipes that are kilometres, you know lighter, much easier to install, so they usually reduce the total cost of ownership of this, creating possibility in deep water, like, for example in Brazil and big projects like Libra. So these to me, to us, will be much, much faster, and this is the reason

why we launch the commercial grades six months ago. It is a Evolight brand, new technology is gaining real momentum, and this improves our concept in many development programs with our customers.

Jean-Pierre Clamadieu: So since we last talked, we have seen the traditional OEM probably signalling that the adoption of composite will take longer, although we have a number of programmes today with specific parts, mostly technical parts, battery support, these types of parts where we are looking for pretty complex design and light weighting. We are seeing few newcomers, and we cannot be very specific on who they are, but in the automotive, looking at very breakthrough design, using composite, and in some cases, we are working very closely with them. And then we have seen emerging this demand coming from the oil industry where we see indeed significant volumes and pretty short term, because these guys are looking for hull breakthrough in the way the design part of the equipment which goes on the sea bed. So when we look at the overall story, we feel pretty confident that besides aerospace, we will have a number of other opportunities in industries, oil and gas probably coming sooner than automotive OEMs.

Augusto Di Donfrancesco: Your first question to be sure is about the synergies between composite materials and specialty polymers. Well, I think there are many that I mentioned during the thermoplastic, for example, is the classical elements. They show when you put together the same team, R&I, and you have all the competencies, the building block and the right approach to the customers, you accelerate. Not only is it the technology synergies that are evident, but when we go into the customer synergies as well, we have a number of programmes today that are using our specialty polymers in aerospace that were not possible before. Clearly, the access to aerospace has opened new avenues in using our high performance polymers in other applications. It is clear that in automotive or in oil and gas, these are markets or customers where essentially specialty polymers customers, aiding the composite carbon fibre composite material technologies available, is opening a new way, a new avenue, a new critical mission functionality that we are developing today.

So clearly, at the beginning, there were essentially cost synergies, but now, really we are seeing what does it mean, topline synergies, and it is essentially linked to acceleration of innovation thanks to bringing all together the building blocks for these advanced materials, and access to customers and markets.

Jean-Pierre Clamadieu: You might remember that we have moved our composite material team from Phoenix Arizona to Alpharetta, Georgia, where we have already the North American part of specialty polymer. I was there at the beginning of the month, and it is very impressive to see these teams working well next to each other. I mean, you can really feel when you are there, the synergies being developed, because on a number of situation, indeed, we have teams coming from the 2 GBU working together on some of these initiatives that Augusto mentioned, and indeed when it comes to non-metallic advanced materials, today Solvay has a unique kind of products where we feel very optimistic but this combination will give us a lot of force, and when we talk to customers, they recognise it. For OEMs, for aerospace OEMs, where thermoplastic composite is really the grail, especially for fuselage applications, they are very recognised by Solvay has the ability to bring a unique combination of knowhow and technologies. I think we will see a lot coming out of this joint approach that we have been able to promote between our polymer and our composite business.

Jodi Allen: Thank you. Sticking with advanced materials for one moment, I would like to take a question from our viewers. 'You have mentioned Safran many times to illustrate the growth potential for Solvay, how do you reconcile this with the strategic objective of Safran to increase the share of alternate suppliers to reduce cost and risk?'

Jean-Pierre Clamadieu: Well, I think that there is a simple answer. When we were in Farnborough, we have signed an agreement with Safran which will extend the exclusivity period, which means that in this specific case, Safran has made a decision that we are good enough, effective enough, reliable enough suppliers so that they can count on us on the long-term. This is built on a longer history of development, I mean, we started developing solutions for the LEAP engine, and this was at Cytec times, probably ten years ago, and during these ten years, we have supported their development, and we have convinced them that in front of the pressure of the aerospace OEM to increase their production, we would be able to follow and continue development, if they decide to exceed their current stated goals in terms of engine production.

Augusto Di Donfrancesco: We invested also in Östringen and a specific line for raising infusion to follow specifically Safran and following the force to really increase bit rate. So we are there really to support them, and it is an element of pride for us to see that this is working, and at the end, it was transformed in long-term agreements to follow this exciting programme.

Nathalie Debruyne (Degroof Petercam): Thank you for actually giving us a bit of an idea of the size of your battery business. I am very curious actually to know what the competitive landscape looks like in this business, and you intend to grow the sales tenfold if I understand correctly. Is that at constant capex, or do you still need to invest in there, and obviously, so that is my question. What is the capital intensity of that business, because you did not provide any numbers with regard to the investment that you are making to increase capacity by 35%, so I am curious to know about it.

Augusto Di Donfrancesco: In terms of competitive landscape, I think you refer to fluorinated-enabling material, right? While there, I would say is a very healthy situation, there is Solvay and a couple of other global players that can provide this material.

Jean-Pierre Clamadieu: You can share names.

Augusto Di Donfrancesco: Okay, the name is Arkema and Korea, okay. And I think this is not a big deal. And then there are emerging but essentially really far from the requisite that the industry and the customers are asking for. So, good industry structure.

The second question is capex-intensive zone, where we do not give this number, but you have seen the margin into the cluster, advanced materials cluster, so it is certainly a good segment to invest, and this margin is absolutely sustainable. So we have a duty. We are in all I would say the major OEMs, battery OEMs today, Korea, Korean, Japan, China, and we have a duty to really feel the programme and feel the growth that our customers are enjoying in this market. You cannot really say I do not have the material because you are asking more, so this is a little bit the picture. We will continue to invest, we will continue to follow the demand. As I said for the time being, the demand is very strong, because we started up one plant last year in China, and then now we announced the new extension in Europe.

Karim Hajjar: Perhaps just to build on that, perhaps at the risk of stating the obvious we are confident of our ability to invest for the great growth opportunities and still remain within the one to 1.2 times capex. Our job is to make the right decisions in terms of allocating and timing, and that is exactly what we will do.

Jean-Pierre Clamadieu: Again, I mean we have a mixture, we started this business, PVDF, out of our Tauvaux plant, then we moved to Shangzhou, which was almost a green field project, and now we are back on Tauvaux. This was this morning's announcement where we do significant bottlenecking which is much lighter in terms of capex than a green filed, and we will continue to make sure that we cover very well the world, and that we are able to continue to bring to our customers the materials that they are asking in larger quantities.

Hua Du: Yeah, I think that during the break, some of you ask about the projection of EV penetration in auto markets. I think this has been evolving. We have other businesses in auto industry, we have been discussing with our customers. A few years ago, you know the forecast for 2030 is 5%. It is not a big deal for the conventional businesses related to internal combustion engine. You know, we produce 100 million vehicles a year, 5% is big news for the battery producers, but the overall impact is small. However, after 2015, after the emissions scandal, the number has been increased a lot. We see quite a number of European carmakers put very aggressive targets, you know, 25% of new car sales, so it will be electric vehicle or hybrid in 2030.

So I think we see a lot of numbers. What is really driving Solvay business growth in battery, I think one is the industry trend going to electric vehicles. And also, we see that you know the business we have today is providing additional performance benefit. For example, separator. You know, some people ask to reproduce separator. I think we do not produce separator, we provide PEF coating for separator, and that brings a significant safety improvement feature. And there are still a lot of batteries today are not coated, so I think by that requirement itself, it is going to provide a lot of growth opportunities. Also, I think Augusto talked about the fluorinated polymer technologies used in cathode binder, and also you mentioned that we have innovation projects or a binder for a silicone anode, and also other areas like the cooling agent for the battery pad using polymers, so that is for the polymer side. And then another business unit within Solvay is focused on electrolyte, it is widely believed that fluorine chemistry is the solution to improve the performance of electrolyte.

This is not about polymer, it is about inorganic molecules and simple organic molecules, fluorinated. So they are you know going to the next stage in the battery technology, what we call the advanced lithium ion battery with higher energy density, charged at higher voltage. There will be new requirements for new type of solvents, new type of salts, and this is where the other business unit is focused on, utilising our expertise in fluorine chemistry in the inorganic and organic synthesis field.

Alex Stewart (Barclays): The question about composite capex in growth, could you just remind us how many of your growth programmes particularly in aerospace require new carbon fibre tow capacity, and how many are specifically designed to buy in the tow from the third party?

Augusto Di Donfrancesco: I think that, you know that we made an expansion of our carbon fibre in Piedmont in South Carolina, and this is what supported the foreseeable future, so we do not expect a big investment in this. You also know that depending on sound quality, we have a strategic alliance for other grades of carbon fibre, so we will continue with this strategy. We will continue to invest when it makes sense, and we continue with the strategic alliance, where it makes sense. What is important is that this strategy has allowed us to be many key programmes like I showed you today, and continue to be in the forefront of innovation for everything, this new programme for the future, so this is strategy that is working.

Jean-Pierre Clamadieu: If I may comment a bit more, I think that we believe that our strength is on the resin and the process. We think that we need to master carbon fibre technology, and it is why we have invested today. I think we outsource a bit less than half of our needs, that is satisfactory, and we are relieved. When we look at the new development, this is the slide that Augusto was presenting, RTM is really a technology which in our view has a lot of potential, and again there, what we bring is the resin and the fact that we master the process by which the part is produced, much more than the carbon fibre itself, so we are not thinking today of any future large investment on carbon fibre to supply the current programme.

Patrick Lambert (Raymond James): Three questions, all around OEMs automotive, and sorry to be short term. There is a lot of concern about the sales levels, and what makes you confident that even this maybe slower growth of auto, you can still largely outperform the auto production that you have done in the past years and you still forecast for the next three years, that had three times type of performance.

The second will be, can we get a bit of granularity on your auto OEM exposures? In terms of, you know, the big ones, which one we should look at in terms of potential slowdown or not.

And I think the last one will be, the last time we had the capital markets, you had a very good slide on revenues per platform on planes, on aerospace. Is there any big change on that level of revenues per plane. I am thinking about the 777 in particular. Have you actually increased on that?

Jean-Pierre Clamadieu: Well, I do not think we have published 777X because it was a little bit early, but you know, for the ones that we have published from the C-series to the F45 or the LEAP engine, I think ballpark numbers are the same, so no need to update. There may be a general comment, and I will turn to Augusto, you know, we are not saying that we are completely immune from whatever can happen in the automotive sector. If we saw a big drop in demand, we will have an impact. It is not at all what we are seeing today, but I know that some people could fear a situation like that. What you have to realise is that we are in a situation where we are increasing market share, and when I say market share, it is market share versus other types of technology and this gives us confidence that we are indeed growing faster than the overall growth of the market and this is due to the fact that there are still substitutions from metal to polymer and from less advanced polymer to more advanced polymer, and we would benefit from these and the electrification trend that you have mentioned will also give us a lot of opportunities, because going from one commercial engine vehicle to an electric or an hybrid vehicle increases also the opportunities for us. But maybe you want to give a bit more granularity on this, Augusto?

Augusto Di Donfrancesco: I think Jean-Pierre is clear that for the fact that we are participating in technology substitution, essentially, we will continue in each new car to have more high-performance materials than before. This will continue. Electrification is a trend that is essentially continuing. So for sure, a global slowdown is a global slowdown, but we will overperform the market for the fact we participated in the substitution of technology.

OEM, well, it will be a long list, so I am limiting myself to say, you know what, it is more than 50 years that we are in the automotive, and we are working with all the major, I would say, if you look at Europace, is German, and when you go in North America is the area of Detroit, and when you go in Asia, you have all the emerging that are really now taking their share in the sense that, you know, when we start, we said, okay, the Euro 6 will be in Europe, then maybe we will move in Japan, then maybe we will move in North America and then finally in China. No. We are seeing exactly the contrary. Really, China made a step forward in terms of introducing the China Seas that if you look are even more stringent than what is in Europe. These will ask for more high-performance materials. So, we are the emerging I would say that are not really emerging. The Chinese OEMs is also part of the panel. So if you want to track us, you should look at the three continents and the key OEMs, and probably we are there.

Jodi Allen: Okay, I have an incoming question for Karim. There was an interview this morning that mentioned hybrids as being one of the items of debt that you would like to target. Could Solvay consider a tender of the outstanding hybrid debt? Does Solvay need equity credit in management's view to obtain the triple B or maintain the triple B rating?

Jean-Pierre Clamadieu: So Karim, that is the hybrid story?

Karim Hajjar: Okay. It is normal practice to make a call on the hybrids before they come due. We have 700 million. The first call is in May 2019. Ordinarily, we would make a call, retire them and the normal practice is to issue a new set of hybrids of an equivalent level of magnitude. That is normal practice. What we see is a legitimate case for discussion. A constructive dialogue with the rating agencies to say we care about investment grade. We are very clear that hybrids are a permanent part of our capital structure. However, can we look at adapting the full magnitude of the hybrids, given the significant deleveraging from the various divestments. There is an opportunity for us to have that constructive dialogue. I do not want to tell you what the outcome will be before that conversation goes to full conclusion. We are confident that there is a credible case to be made, and we will see where we land, but hopefully we will be somewhat better than just replacing the 700 with a new 700. It is possible, but I am hopeful we would be able to do slightly better than that. Exactly how much etc., we will see; clearly when we have more clarity we will make that very clear to the markets. That will be before May obviously.

Chris Counihan (Credit Suisse): Firstly, for Pascal, thanks for the extra info on the soda ash cost curve. Does all the volatility and depreciation of the Turkish lira impact that at all? And my second question is for Karim, and maybe just to confirm, you did say there was no ability to really get the cash provision outflow down at any stage in the next four to five years. Maybe that is a bit of a circling around with the hybrid question as well, given the deleveraging events. Is that true?

Pascal Juery: Okay, let us go first, Turkey. Well, the cost structure of soda ash mine in Turkey and especially the Kazan mine is not really dependent on Turkish lira when you put everything together. It is a lot of CAPEX and machine that are not bought in Turkish lira. It is energy and gas prices are not in Turkish lira. It is shipping costs, and again, it is not in Turkish lira. So yes, marginally, you know, they will benefit from the Turkish lira depreciation, although it comes with a very high inflation as well, by the way. So it does not change the overall picture. On top of that, I mean, that is a project that was financed also in euros and dollars and not in Turkish lira. And again, so most of the structure is international currency and therefore, it does not change overall significantly the competitiveness of Turkey.

Karim Hajjar: On the provisions, I think the real question is can we reduce those provisions and somehow reduce the cash consequences of the payments, and the reality is this. It is possible to take, for example, pension liabilities and ask insurance companies to step in and take over your liabilities. Two things, one, you pay premium for the privilege. The premium can vary with time, it can easily be 15, 20, 25%. So if you have a billion that you are trying to remove from a pension liability point of view, you will find yourself with debt of 1.2-1.25. I do not see value creation in today's market conditions; that is one.

The second point is, I did highlight that we are in a relatively low interest rate environment. If interest rates go up and the liabilities shrink, and I have indicated 0.7 billion for 1%, that could be more compelling at the right time to look at options of that nature. So let us say, we are very mindful, we will look at opportunities to let us say improve the balance sheets in that context, but ultimately, there are not many obvious solutions that open themselves up today, and the same situations present themselves with environmental liabilities where you really need an industrial operator to look at those risks and manage them, and if you go for a financial solution, you will pay very, very significant premium. We do not see value creation. So we have looked at it. We will always continue to look at it, but at the moment what we think we have is very much optimal for us. As I said, those cash payments, that profile will begin to decline over time, not immediately, but four to five years from now, we will begin to see some good reductions.

Sebastian Bray (Berenberg Bank): One, could you please give the absolute number for this current sales directly to battery business of Solvay? Is the €500 million an aspirational target that includes solid state, or is it just the growth of the existing business and technologies, is the first one.

And secondly, on simplification and portfolio structure, what will you do if the European Union blocks the sale of the PA6 and PA66 business? Thank you.

Jean-Pierre Clamadieu: On the second one, and I will let Augusto answer the first one. On the second one, the message is very simple. There is no reason for us to imagine this scenario. We are today working very hard with BSF to buy into the EU the assurance that will give them the ability to accept this deal, and this is really the scenario in which we are putting all of our resources.

Augusto Di Donfrancesco: We are having a constructive dialogue as well with the commission, BSF does it, and we are supporting of course this dialogue and, as you know, the timing has been set for the end of the year and today, again, we see no reason not to get the clearance for the deal. So we are quite confident going forward.

Jean-Pierre Clamadieu: Battery?

Pascal Juery: I said that we were more than 50 million, you can say that we are today in the range of 1% of the group sales. So this is what I can tell you about the current level. So you can imagine the progression. I also said that three years ago, they were a few million. So there is really a ramp-up.

What is inside this number? There is not really solid battery, because frankly, solid battery is something we come in ten years plus, is the current lithium-ion batteries plus the advanced lithium-ion batteries that certainly would come. You know, in this number, we have not accounted the batteries that are not dedicated to the automotive. So this is stationary that really represents another bigger opportunity for us. So this is in line I would say with what we listen for our customers. What is reasonable is 10% growth in average in the next certain years, so absolutely I would say achievable. So the potential can be bigger if we consider other opportunities like the stationary. But not solid state. Solid state will be ten years plus from now.

Karim Hajjar: Perhaps one further point just to build on what Augusto said, the 1% of group sales is just around the corner, but we see it today where 1% of the cluster is sales. So it is probably about half that. But we are aiming high.

Jodi Allen: Okay, let us switch over to advanced formulations for a moment. Your oil and gas performance has closely followed the rise in rig counts. Is this still a good proxy for that business or shall we be thinking about a different metric?

Augusto Di Donfrancesco: I think it is no more than the right proxy, the rig counts and the wells numbers. If you see today, the production level which is at record level, it is done with half of the number of rigs as it was five years ago, because of a change of technology for switching from a vertical to horizontal drilling. I think much more complicated to follow, but I think a probably better proxy today is I would say the number of stages that are fracked horizontally, which is available in the literature.

Laurent Favre (Exane BNP Paribas): I have a question for Vincent on the formulations. From memory. HPC used to be the biggest end market; you have not mentioned it I think today. Can you talk about your positioning there and whether or not you are deemphasizing that business? Thank you.

Vincent de Cuyper: Good question. We try to simply our message and I think to indicate that the segments where the most value is for Solvay for the customers is where the complexity of the operating conditions are the highest. This is where we can provide the most added value to our customers, and this is particular to what I tried to explain when operating conditions are changing in oil and gas and mining, this is why these segments on top of megatrends are very interesting for us.

This being said, yes, homecare/personal care remains one of the main segments for us and I did not mention it, but when you look at the North Care business today, we have eight key blockbuster innovation projects: three are in oil and gas and we mentioned two. Two are in agro and I mentioned one. We have still two in homecare/personal care, which are progressing well. These are the ones that we mentioned two years ago, Actizone, and one for the new softener. We are developing progressively at commercial stage today with second-

tier customers. So moving forward, but in fact today what we tried is really to simplify. But homecare/personal care will remain an important segment for advanced formulation.

Emmanuel Matot (Oddo Securities): Just a question on advanced materials, please. Could you remind us how you are exposed to smart device end markets and what we can expect for the coming years? And not having the capacity to diversify your customer portfolio? Thank you.

Jean-Pierre Clamadieu: Bit of a challenge, Augusto.

Augusto Di Donfrancesco: Yes, because smart device is one of the most dynamic, you know, markets with the cycle that lasts six months compared with a 40-year scenario. So it is very dynamic for sure.

Of course, there, there is design choice that has an impact on the materials that are used. There are success factors linked to if our customer at the end is successful launch or not of the model. So very dynamic. So when you look year over year, it is a little bit difficult. But I would say it is a market that has continued to grow a little bit less than in the past, is a market that continues to need innovation in terms of materials, in terms of design, and we continue to have a strong position still with the key customers like Apple. Now, what is the future of the smart device? I think more and more we are going into integrated systems. I mentioned that a car is a sort of iPhone on four wheels, clearly. There is lots and lots of opportunity there that we are following up. So long story short, in electronic, the smart device continues to be an interesting domain for us to look at, and I did not mention the new technology like the 5G technologies that really is going to be another revolution there, and the materials, the high performance polymers, there is a role to play there. So long story short, sometimes we suffer a little bit like as it will be the case this year in the first half of the year, but working on new projects or programmes that we will come back and we will help all the rest to grow.

Jean-Pierre Clamadieu: And if I may just give a bit more flavour, I think the challenge is that we are very well positioned on the very high-end products and customers, with guys who are really willing to make no compromises for part of their product line, and there, we are doing very well, and indeed, these very large smartphone makers continue to be a very large customer of us. The good news is that we have reduced our dependency. We are spread much better and I think it is probably something we had to do, which means that we are selling less than we used to two or three years ago, but again, for us, it is a welcome diversification. Now, the challenge is to diversify in terms of customers and it is true that we see behaviours, approach to design, approach to material selections which are very different from one smart device producer to another and we tend to be very relevant on the very high end part of this market.

Jodi Allen: Okay, sticking again to advanced materials. Does Solvay's integrated model provide a clear competitive advantage to stay ahead of competition and maintain a leading position in the development of thermoplastic composites? I am especially referring to Arkema which is not integrated, yet has adapted an aggressive approach in thermoplastic composites with significant growth expectations.

Hua Du: Okay, it is good to have a competition for sure. And the fact that some of our competitors are reproducing what we have announced with the Li-ions and also the fact that

competitors are investing even more I would say in the thermoplastic materials development is a sign that it is a good place to be, and then we are really busy now to deliver because we have everything we need at home, okay, and frankly we are prepared for the ramp-up. We have announced the large capacity in PEKK that we have in North America and we have in India, these are supporting the concrete sales into aerospace today. I said that we launched the new grades for oil and gas. This is what is supporting concrete development today. So our focus is really to accelerate on the building blocks that we already have and stay, I would say in the front line running and satisfying our customers.

Jean-Pierre Clamadieu: Well, I mean, another question could have referred to the acquisition of 10KT by one of our Japanese competitors in composite. He paid 20 plus times the EBITDA to buy a pretty small business in thermoplastic composite, then Excel partnered with Arkema, and I think probably good news. It shows that everyone realises that thermoplastic composite is the way to go for some applications. Frankly speaking, we have the best possible position in thermoplastic composite and if we play well, we are the only guys actually on the markets serving large OEMs with thermoplastic composite and if we play well, we will enjoy a lot of opportunities out of our current positions and there will be competitors and it is good, but we have all that is required to continue to be a leader on this segment.

Jodi Allen: Let me take one more from our webcast viewers. 'How are you ensuring your market position with major Chinese customers who are gaining market share in markets like auto, aero and batteries?'

Jean-Pierre Clamadieu: By becoming Chinese, obviously…

Hua Du: Solvay has been operating in China for over 30 years and we built a strong footprint there. We have 16 industrial sites, including two platforms. One for chemicals, one for polymers, we have R&I centre in Shanghai and several application labs in our plants. We have one composite material manufacturing site near Shanghai, and in China, this is the only plant producing composite materials for the aerospace industry. So we are very well positioned in China to capture the growth and to work with the leading players in China.

You know, industrial and innovation footprint are just one thing. We also pay constant attention to talent pool build-up in China. We are very glad to see that we have Chinese teams on the frontline interacting with our customers, running plants and managing investment projects. We have developed a strong business relationship with local customers. These customers are the leading players in their fields. When you look at the sales in advanced materials and advanced formulation, these customers, local customers, contribute quite a significant portion of our business there. Also, we look at the partnership with local companies and universities. This is important for us to ensure the supply of key raw materials. I think that is very important for our growth in the polymer business. Also, this helps us drive innovation faster, understand the local market needs for innovation with our own technologies. So we build our strengths in China to capture growth, and local players are very important. Today, you see one third of Solvay group revenue is from Asia, and a big part of that is from China. We have been enjoying double-digit growth there in the past few years and we expect the same in 2018 and the years to come.

Jean-Pierre Clamadieu: First, I hope that this has been a useful day. We have tried to share in a very simple and transparent way where we are today. We have tried to show you

that the Solvay story is probably a bit more simple than some people tend to think about. You see that we have a great team already to move to the next stage. You are waiting to know who will be the leader, so as Nicolas Boël said during the introduction this morning, you should know in a few weeks who will be leading this effort and who will be delivering on these numbers or hopefully exceeding them, and from my own standpoint, I just want to thank all of you. I mean, I have been the CEO of chemical company for the last 15 years, I have known some of you for many years, some of you have made nice comments during the various sessions. I enjoyed very much the interaction with the financial community, I mean, it has been great, I mean I know some CEOs who say you know it is always a challenge to do all these roadshows and to meet analysts/investors. For me, it has always been a great pleasure and not just a great pleasure, I took a lot out of almost all of the meetings I had with this community. So a big thank you for all the quality interaction we had during these years, and we can continue around a glass of champagne right out of this door. So thank you very much.

[END OF TRANSCRIPT]