



# **The industry renaissance: much done, more to do**

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**Harry Brekelmans**

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Harry Brekelmans became Projects & Technology Director and a member of the Executive Committee of Royal Dutch Shell plc on October 1, 2014.

He joined Shell after graduating in 1990 with a degree in Petroleum Engineering from Delft Technical University in the Netherlands. He began his career in the research and development department of Shell's Exploration & Production (E&P) business in the Netherlands, followed by a variety of assignments in Egypt and the UK.

Harry was appointed Internal Audit Manager for Shell E&P Europe in 2003. In 2005, he became Global Audit Manager for both the E&P and Gas & Power businesses. From 2007, he was Chief Executive Officer of Salym Petroleum Development, a Shell joint venture in Russia. In September 2009, he became Executive Vice President (EVP) for Shell Group Strategy & Planning. In mid-2011, he returned to Russia as Country Chairman and EVP for Russia and the Caspian region. He moved back to his native city, The Hague, the Netherlands, in early 2013 to take up a new role as EVP for Upstream International Operated.

Harry is a Board member of the Global Leadership and Technology Exchange, which connects business, governments and civil society in seeking more efficient, low-carbon growth.

Harry is married to Petra and they have two children. The family enjoy travelling and sports, especially tennis and running.

**An industry renaissance may be under way, but there is still a lot to do, says Harry Brekelmans. Shell has changed and the industry has changed, but this is only the beginning. The oil and gas industry must build on the progress it has made and continue to change to be ready for the future.**

Ladies and gentlemen,

When I last spoke at this conference in 2016, I outlined the need for an industry renaissance. The Renaissance itself unfolded over years, decades, centuries. Even the magnificent Duomo, which stands so firmly in the history of the Renaissance and so proudly in Florence's skyline, took more than 100 years to complete. And what is more, its great dome would not have risen without collaboration and innovation, without building on strong foundations – and I mean that both literally and metaphorically.

A renaissance requires change. It takes time, dedication, new ways of working. We must apply this to our industry. A glance at recent results suggests that rebirth is well underway, but this, to me, is just the beginning of our renaissance.

As discussed by the eminent panel, there are many factors at work today. We are in a time of market uncertainty, oil price volatility and energy transition, as the world moves to a lower-carbon system to tackle climate change. Yet the world still needs oil and gas and it will for many decades to come. We need to build on our foundations, continue to work together and change to be ready for the future.

### **Our three aspirations**

All this talk of change is one thing, but what does it mean to us? Shell starts with sound business aims – three of them. First, we as a company, aspire to become a world-class investment case. Second, to thrive in the energy transition. And, third, to earn a strong societal licence to operate. How do we approach this in practice?

The first focus, is the ongoing restructuring of our portfolio. Our acquisition of BG Group was completed in 2016, and this bold move greatly expanded our position in integrated gas and deep water. It was a

move we followed up with a \$30 billion divestment programme from 2016 until the end of this year, to sell off non-core assets and reshape our portfolio.

While we continue to build on our strengths as an integrated oil, gas and chemicals company, we are also beginning to lay down some of the foundations for longer-term growth through our New Energies business. The focus here is on power – generation, trading and supply – and on new fuels.

This is clear in investments to date, such as in the next-generation biofuels being produced at our Raízen plant in Brazil. It is clear too in the more recent investments such as the acquisition of NewMotion, which has the largest network of electric vehicle charging points in Europe, and the agreement to buy First Utility, a leading independent energy provider to households in the UK.

In these examples, you see our ambition not only to be a world-class investment case, but also to thrive in the energy transition.

Our second and third aims are capital efficiency and operational excellence. How can we get more for each dollar spent? To show you how we are doing this in practice, let me take you to the Gulf of Mexico.

### **The Shell renaissance**

The way Shell's own renaissance has taken hold since the oil price drop can be seen in four deep-water projects.

The first one I will mention is a one-of-a-kind project that was already well underway when the oil price fell. This meant we were limited in our approach. The last project I will tell you about is one where we effectively had a blank piece of paper. We could redesign it entirely.

**“There are many factors at work today. We are in a time of market uncertainty, oil price volatility and energy transition, as the world moves to a lower-carbon system to tackle climate change”**

Let me begin with Stones. It is the world's deepest oil and gas project and it was novel in many ways. Even though it was advanced in its execution, we rethought the way we worked, we learnt from technologies being applied elsewhere and we made material improvements on costs.

Of course, we benefited from the tailwind created by the changes in the market, by the deflation that took place, but we also made significant improvements in drilling performance.

Initially, it took 150 days to drill a typical well, but now we can get the job done in approximately 60 days.

We then had Appomattox. This time, we had more freedom. We reduced the capital costs of the project by about 25% after the final investment decision. This was after already having achieved 20% cost reductions against initial concepts. We did this through innovation, competitive scoping and efficient execution.

The platform cost, for instance, was cut by a fifth, by using what we had learnt, and replicated, from previous similar projects. In this case, it was the neighbouring Olympus tension-leg platform that we particularly learnt from. We pushed for further savings by standardising equipment and wells. This is how we cut costs, compromising neither safety, quality nor reliability.

As we moved to develop Kaikias, our capital efficiency approach had an even greater effect. As well as our competitive scoping and efficient execution, we transformed how we interacted with our supply-chain. The transformation emphasises the importance of partnership and collaboration with contractors.

We simplified the design of new wells and subsea facilities, we adapted existing wells and we applied lessons learnt from earlier work with subsea tie-back projects as well as innovative design features.

The result? A 50% reduction in costs compared to initial estimates.

The final project I will tell you about is one on which we have yet to make a financial investment decision. It is a project where we went back to the drawing board in 2015 and configured it again. It has collaboration and replication at its core but it also draws on technological innovation. It draws on the impressive improvements in performance that we have been able to develop and sustain in drilling and construction over the past three years.

Vito is a potential new hub in the Gulf and it would never have got close to a final investment decision without this differentiating approach. In this case, the work we did meant a cost reduction of 70% against initial estimates, for the wells, and the subsea and topside facilities. Innovations on Vito include our use of more compact equipment and standardised structural design.

And whilst it is essential that we improve the capital efficiency of all our investments, to be truly competitive, we must drive our third focus: operational excellence.

This means increasing safety, improving reliability, productivity and efficiency in the way we do maintenance, in our logistics, in production operations, in everything we do.

Drawing again on the Gulf of Mexico, we challenged existing practices and took away unnecessary materials and equipment, rationalised stocking and logistics. This meant that we not only increased productivity, but achieved overall cost savings of approximately \$500,000 per rig, per day. We also reduced the number of contract marine vessels by about 75%.

It is by buying more ready products, that we enable a more agile supply response. It is by optimising our operations and understanding what is truly required, that we can better design our future projects.

**“Even though the project was at an advanced stage, we rethought the way we worked, we learnt from technologies being applied elsewhere and we made material improvements on costs”**

### The digital world

I could not speak here, today, and not mention digital. We see digitalisation as one of our key drivers for improving capital efficiency and boosting operational excellence. We now have sensors that work in the deepest waters, drones that patrol our most distant oil and gas fields and computerised tools that make use of the smallest pieces of data.

The possibilities that technology brings are becoming more and more apparent. From the wearable technology of our teams onsite to the insights we gather from the huge volumes of data analysed, every advance allows us to operate more efficiently and more reliably.

But it is not just bold innovation that is needed in a time of change. Not every innovation has to be cutting edge nor one-of-a-kind. In our drive to make operational improvements, we looked to ourselves and we also looked around us. We turned to suppliers. We asked: is there a solution you have that we should be using? Either from our own industry, or perhaps, even better, from another industry?

One of the systems we adopted as a result was Veros, a system for monitoring electric motors. Subtle fluctuations in the motor's power consumption can signal its mechanical failure months in advance. These fluctuations can be picked up by Veros sensors wherever the power cable happens to be, which might be in a far more accessible location than the motor. This predicts issues months in advance and thousands of metres from the source, allowing us to take early action. We estimate that Veros could deliver an additional \$300 million a year of production that would otherwise have been lost by unplanned shutdowns.

### The power of collaboration

So those are our three approaches. Portfolio restructuring, capital efficiency, operational excellence. We use these three approaches, across all our projects and all

our assets. They are crucial to our ambition to become a world-class investment case. In the UK alone they have allowed us to increase production efficiency by 25% and reduce unit operating costs by about 70%.

But it is important to stress that none of this could have been done without the respected partners in our supply chains.

We need to continue to transform the way we work together. We need to drive for more harmonisation of standards, practices and equipment design. We need more co-innovation. All these improvements are essential if we are to continue supplying affordable energy and products from oil and gas for decades to come.

### The way ahead

It is not enough to aim to be a world-class investment case. We must also thrive in this time of energy transition. We must also earn our societal licence to operate. Part of Shell's work towards these two business aims can be seen in our recent announcement on greenhouse-gas emissions.

We have stated an ambition to reduce the net carbon footprint associated not just with our operations, but also with our customers' emissions from the use of our energy products.

We plan to do this in step with society's progress towards achieving the goal of the Paris Agreement. The ambition is to reduce our net carbon footprint by half by 2050 and by about 20% by 2035.

This is an aim that will drive transformation in Shell's portfolio through the medium and long-term, by moving the portfolio mix towards products with a lower-carbon footprint, whether by growing our integrated gas business, our biofuel sales, or by increasing our share of renewable power generation.

And by reviewing every five years we will ensure that Shell stays in step with society. Inevitably, this will mean a lot of change.

**"It is not just bold innovation that is needed in a time of change. In our drive to make improvements, we looked to ourselves and we looked around us. We turned to suppliers. We asked: is there a solution you have that we should be using?"**

But then, any renaissance is a time of change. As I have told you today, Shell is changing. As you know very well yourselves, the industry is also changing. But this is just the beginning. We must, all of us, continue to change. And through it all, we must work ever more closely together. We must learn from each other. And we must make ourselves fit for the future.

Leonardo da Vinci, the master of renaissance, is often quoted as saying: "Being willing is not enough, we must do." We have already achieved much. And there is much more we must do, together, if our renaissance is to stand the test of time. And I look forward to it.

Thank you.

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