

UNITED ARAB EMIRATES



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He who does not know his past cannot make the best of his present and future, for it is from the past that we learn.

– Sheikh Zayed bin Sultan Al Nahyan

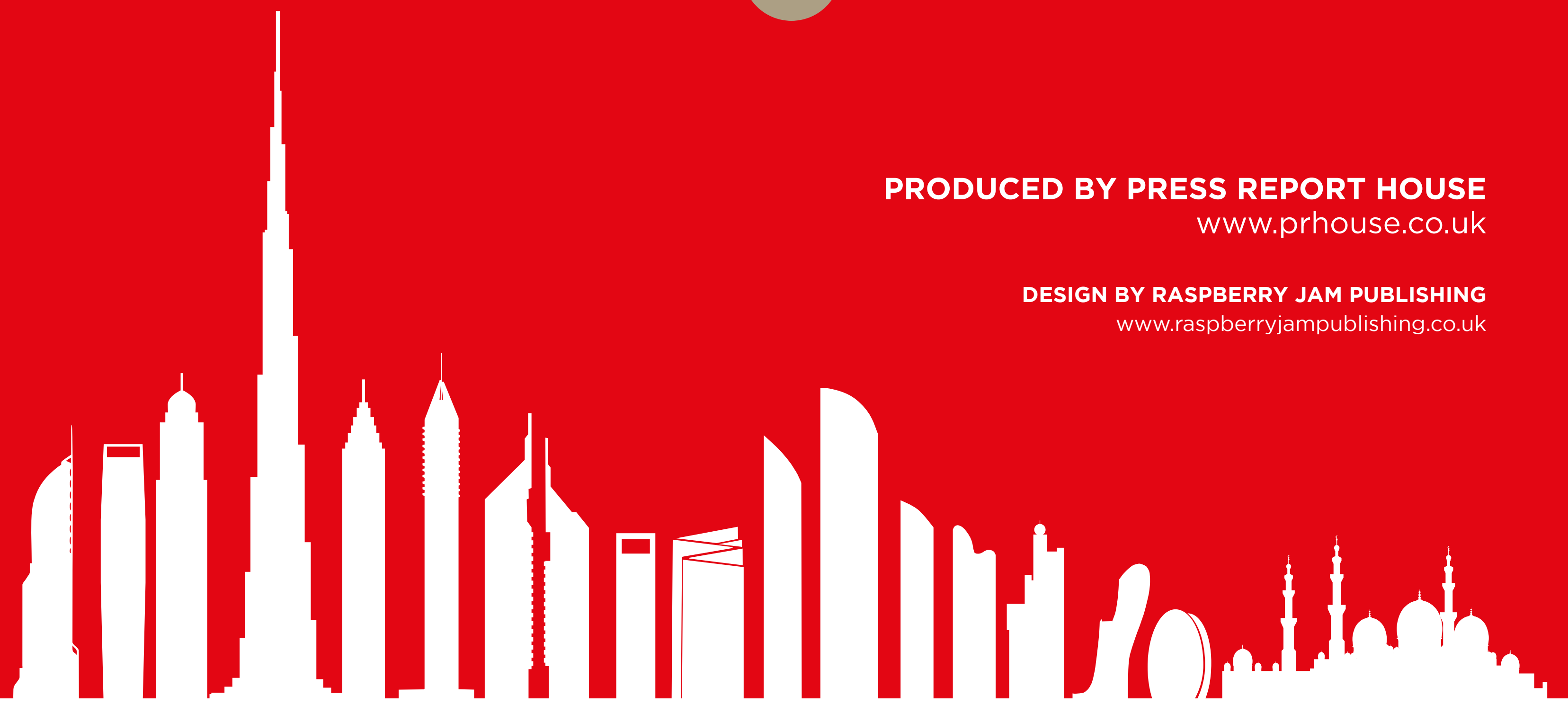
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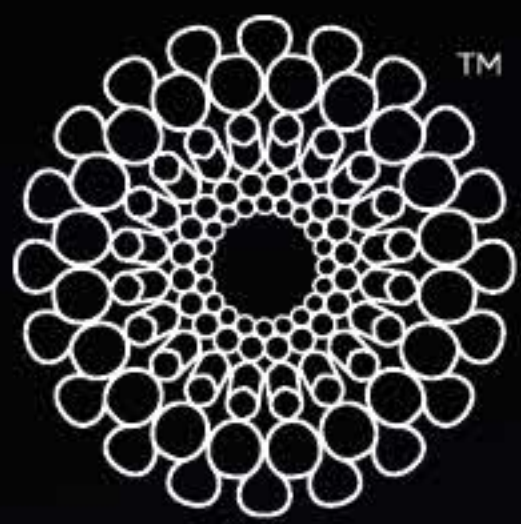
How innovation is transforming a nation



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contents

FEATURES

How innovation is transforming a nation 03

Talent is the new oil 19

Expo 2020 Dubai Celebrating Innovation..... 38

Ready, steady, trade 57

Back to the future 76

INTERVIEWS

EXPO 2020 Dubai 08

Minister of State for Artificial Intelligence..... 11

ADNOC 14

DP World 23

Mohammed Bin Rashid Space Centre 27

DarkMatter 31

Careem 34

EXPO 2020 Dubai 40

Emirates 43

Siemens..... 47

Dubai Airports 50

Seafood souq..... 53

Dubai FDI 59

Cleveland Clinic Abu Dhabi 62

Madar Farms 66

Kestrel Global 69

Chalhoub Group 73

American University of Sharjah 78

PURE Genetic 82

KIZAD 86



HOW INNOVATION IS TRANSFORMING A NATION



innovation *noun* **US** / a new idea or method, or the use of new ideas and methods. *Cambridge dictionary*



2018 marks the centenary of one of the Middle East’s most revered leaders, the late and great Sheikh Zayed, a man who was the personification of the word so commonly used across boardrooms and incubators the world over: innovation. Sheikh Zayed was the man behind the union of the seven emirates, the man who believed the oil wealth belonged to his people and began the development of a modern state. He propelled the country into the fast-forward mode that prevails to this day. As the UAE was ranked the Arab world’s most innovative country earlier this year, we are reminded that it all began 47 years ago. Sheikh Zayed was a man of big ideas, open to new methods and peoples, an example that still paves the way for all to feel welcome in the UAE, among the 200 nationalities and ethnicities who reside here, from the Bedouins to the new Blockchain bosses.

On December 1st, the Emirati passport became the most powerful on the planet with access to 167 countries without prior visa requirements, surpassing Singapore and Germany, an extraordinary feat for a young country celebrating their 47th anniversary the following day. The December 2nd celebrations mark the advent of the union of seven emirates, and the creation of the United Arab Emirates in 1971. The union was the result of perhaps the first of the big ideas, initiated by Sheikh Zayed bin Sultan Al Nahyan, the then ruler of Abu Dhabi and Sheikh Rashid bin Saeed Al Maktoum, the then Ruler of Dubai.

Abu Dhabi, the UAE’s capital, struck oil in 1958 and began exporting in 1962. Sheikh Zayed and his fellow rulers put the oil money to use and built the foundation blocks for an economy open to the world, keen to emulate what they had seen abroad, building roads, schools, the port of Jebel Ali (one of the world’s largest to this day) and everything in between. A British journalist quoted Sheikh Zayed saying “The oil business is like a lottery, I might still be poor and my neighbors rich, so we ought to help each other”. And help he did, from neighboring countries to the four corners of the Earth, not without first enabling his citizens to become some of the wealthiest and most future-ready in the world 47 years on. If only all those who top



The Louvre Abu Dhabi, Jean Nouvel's latest creation, opened its doors in November 2017



the Forbes' list today, be it tech billionaires or industrialists, could say that they too carried an entire nation with them.

Henry Ford famously introduced the \$5 a day wage and in so doing, increased the productivity of his factories converting workers into a middle class who could afford the very products they were making. Ford understood an economy as an eco-system. The UAE has taken that model a step further pushing the education agenda and rewarding Emiratis well, instilling a drive hard to emulate, seemingly fueled by respect and gratitude towards the leadership, creating a positive knock-on effect. Citizens in turn strive to do the best they can for their country, working with determination as if for a higher power, a cause, or their leaders, past and present. There's a general sense of togetherness and purpose so many of us seek in other parts of the world.

In a TED talk, tech investor Nick Hanauer reminded us that "The difference between a poor society and a rich society is the degree to which that society has generated solutions to their citizens' problems". Just two weeks ago, the UAE held its annual government meetings to establish yet another roadmap. The ambitions are frequently very high and expected to be executed in record time. Today, nobody would question their capabilities. On the agenda? To be among the top 10 nations in the World Food Security index; that 13% of GDP be powered by Artificial Intelligence by 2030; to enhance the advanced sciences environment in the UAE, to attract ever more scientists and innovators; to equip their youth with advanced skills to meet the requirements of the future job market and embrace life-long learning... among so many other targets they continuously set themselves that address issues of national interest with the overarching goal to prepare their youth, anticipate and innovate.

Planning and very long-term planning seem to be key in the UAE. The space





program, Artificial Intelligence and Blockchain strategies are on 3 to 100-year plan paths. Muhammad Aurangzeb Ahmad, from the Department of Computer Science at the University of Washington – Tacoma spoke at a Dubai Future Foundation event a month ago explaining that while different societies will address challenges in their own way, reflecting their historical and cultural background, the concept of Artificial life is not alien to the Islamic tradition. “Muslim scholars, starting with Jabir ibn Hayyan talked about the concept of Takwin which equates to the concept of creating artificial life. Many of these scholars were also religious scholars. They did not see contradiction in their religious commitments and the creation of artificial life a thousand years ago.” It is only fitting therefore that the first ever Minister of Artificial Intelligence be appointed in the United Arab Emirates. That the young Minister speaks of responsible development of technology being important is a responsibility one would only expect the forward-thinking Emiratis to plan for.

Sheikh Zayed was also innovative in how progressive he was in other ways, from conservation and a love for wildlife to foreign aid, and perhaps most remarkably, for supporting the role of women at work. His wife, Sheikha Fatima, famously campaigned for female literacy and for women to seek work in politics as in any other realm. Today’s UAE government cabinet comprises of 9 female Ministers, including key Ministries from Advanced Sciences or Food security to Transportation.

The country surpasses Switzerland and the U.S. in terms of GDP per capita, ranks 7th in the world in proven oil wealth, and with Abu Dhabi’s investment arm - the Abu Dhabi Investment Authority already considered the third largest Sovereign Wealth Fund in the world- wealth is no longer something to be attained in monetary terms. The wealth the Emirates seek lies in knowledge and in their ability to exceed their own capabilities every day, in different ways. Investing in their own people, in their own country as well as others and abroad, the UAE is a force to be reckoned with, and the sky is not the limit, as the launch of Khalifasat into space proved. Innovation is engrained into the overall governmental strategy, as well as into every private company, from tech to traditional. It is embedded in the future-focused startups that have emerged across the Emirates, from Sheraa in Sharjah to Krypto Labs in Abu Dhabi, and Area 2071 or The Greenhouse in Dubai, pollinating progress across tech and every area of life. Out of the desert has sprung this extraordinary oasis of ideas and possibility. And it all began with one man with a vision, the master innovator that was Sheikh Zayed. ●



Sheikh Zayed Grand
Mosque opened in 2007



أدنوك
ADNOC

OIL AND GAS 4.0

The Fourth Industrial Revolution is creating a paradigm shift in global growth and driving greater demand for energy products. To enable this massive step change in global development, our industry must think differently, embrace disruption and step beyond the comfort zone.

We, at ADNOC, are giving this mission a simple name: **'Oil and Gas 4.0'**. To fulfill this mission, we are optimizing our resources, forging ambitious new partnerships and embracing cutting edge technology.





DUBAI EXPO 2020 BUREAU

Interview

UAE MINISTER OF STATE FOR INTERNATIONAL COOPERATION
- DIRECTOR GENERAL, DUBAI EXPO 2020 BUREAU

Her Excellency Reem Al Hashimy

PRH

Your Excellency, Minister of State for International Cooperation and Director General of Dubai Expo 2020 Bureau, how do your roles complement each other?

RAH

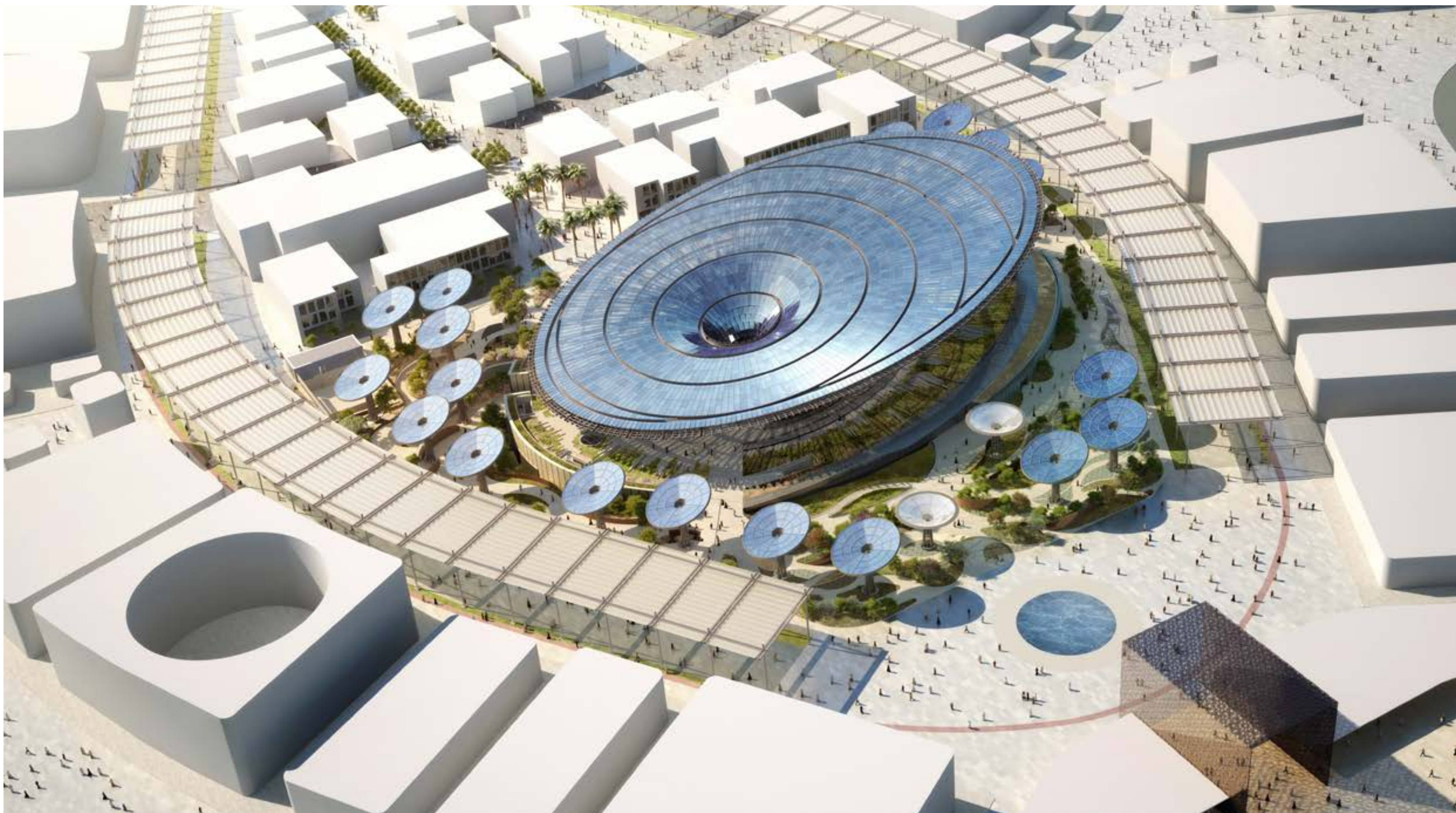
My role as UAE Minister of State for International Cooperation is manifested in a very pragmatic and physical way through Expo 2020, which is, as World Expos tend to be, a physical interpretation of what international cooperation could look like. Our theme, as you know, is ‘Connecting Minds, Creating the Future’ and for us, this is a very authentic theme as it speaks very much to who we are as a people but also to what the U.A.E. story has been in the past and what we hope it continues to be in the future.

Ever since they first began in 1851, World Expos have been about trying to bring people together to share something special and they are always centred around a particular theme. In the Emirates, the idea of bringing people together is very much part and parcel in not only who we are but what has made us strong. So, we see this World Expo as an extension of that and we are really working diligently to make sure that we have a platform in place that truly fosters this ethos; the importance of bringing people together. Not for geographical reasons only, or physically bringing them together, but creating things that they can work on together that can have the most meaningful impact.

PRH

You once said: “Expo 2020 Dubai will provide an unprecedented opportunity for countries in the Arab world to redefine themselves on a global scale... dispel past narratives and forge our own voices, defining who we want to be. The impact can be nothing less than transformative”. Could you tell us about the impact you spoke of and what you hope Expo 2020 Dubai can achieve?




RAH

Our ambition is that we put in place an ecosystem that truly propels whoever participates in the Expo to emerge in ways that they have always aspired to. It will be as good as the contributions people make. The Expo is a collective effort. The UAE will do its part. It will work harder than ever before, using all of its past experience to deliver an exceptional World Expo. By the same token, we hope that other nations see this as an opportunity to put their best foot forward; to fulfil their own interests and ambitions and national agendas as well. Really the World Expo is a tool, not just to begin a conversation, but also to help clarify and redefine what a national vision is.

Collectively, we would all put in place what our world could be, and what our world in fact is, so that the millions of visitors who come and see the World Expo get a really powerful sense of what the world looks like in the 21st century. As they see this incredible co-creation that continues to happen between different nations and different communities, see the irrelevance of geography or geographic distance in bringing different kinds of innovations together, we hope people will be filled with a sense of inspiration, hope and optimism that will send them forward to mark their contributions towards it.

We hope that other nations see this as an opportunity to put their best foot forward – to fulfil their own interests and ambitions and national agendas as well





PRH For those hoping to win future bids for World Expos, why do you think Dubai won – and by a landslide?

RAH I believe that countries trusted us. They trusted that we have a strong credible track record, that we don't overpromise and under deliver and that we were not after a vote, but after a vision that included them, and they believed that they could see themselves through this Expo too. As a close friend of mine said so aptly during the bid "It's their Expo, we are just hosting it". I think that attitude permeated our lobbying campaign.

There was also a lot of respect in this process. Respect for opposing views but we also did a lot of leg work. We didn't take votes for granted. We travelled everywhere, and we approached everyone, and we were rigorous in our approach. We didn't assume that this would be a landslide; we fought for every vote. We understood what was at stake too. It wasn't about just an event. It was more. It is more. It should be more. It can be more.

PRH The late Sheikh Zayed was one of the few great leaders our world has had, along with the likes of Mandela. The U.A.E. has always been a country that was visionary, forward-thinking and innovative. And today, I am interviewing many extraordinary women, showing how much more progressive a country it is than my own, run by men and women alike.

RAH Did you know that 2018 is Sheikh Zayed's centennial, as well as Mandela's centennial? Both leaders visited each other and had a great deal of respect for one another.

I believe that we are how we are and who we are thanks to His Highness Sheikh Zayed. To have had that wisdom and that love for the environment for one. Nothing replaces the power that a vision could have in transforming a society and transforming the future. And alongside Sheikh Zayed stood Sheikha Fatima, and Sheikha Fatima played as important a role, as historical evidence would suggest, in forming the nation as her husband and partner. That idea of partnership between husband and wife is most evident in the relationship they had. We continue to walk in the footsteps of that type of a partnership even years after His Highness' death and that's still the path illuminated ahead for us.

Women in substantive leadership roles continue to emerge and chart these paths forward holding such meaningful positions that it has become a non-issue. Having said that, we should never be complacent as these are issues that are central to development. The role of women is viewed here in the U.A.E. as central to the economy: it is central to the development of the nation, it is central to the development of society, and it is central to the strength of a family... That sense of centrality permeates all of the different prisms with which the leadership views society today. ●

2018

The centennial of the UAE's founding father Sheikh Zayed

1851

The year the first World Expo was held in London





MINISTER OF STATE FOR A.I.

Interview

MINISTER OF STATE FOR
ARTIFICIAL INTELLIGENCE

His Excellency Omar bin Sultan Al Olama

PRH

Why is the UAE committed to becoming a regional and global leader in AI? To diversify, innovate and anticipate?

OA

Let me take you back to put things into perspective. If we look at Benjamin Franklin's hypothesis when he went out and said 'I tried to capture electricity from a thunderstorm by tying a key to a kite' his idea was that this was the sort of energy that we needed to capture. Moving forward from that, Michael Faraday took that hypothesis and transformed it into something usable - the electric dynamo. We've come a very long way to the point where we can't imagine our lives without electricity. Everything around us in life uses electricity. The equation in the past, that allowed us to go from Franklin's hypothesis to our day and age, is the result of a simple equation: Electricity + X = something great. So, electricity + glass= lightbulb and so on... Our lives and our countries are built on this notion.

If we look at the potential that Artificial Intelligence has, I would say that it is as great if not greater. The new equation for success in life moving forward is Intelligence + X. The new way forward for governments to work, would be about how to use or leverage intelligence to make better decisions.

I would also like to draw some synergies with the private sector. If we look at Google, Facebook, Amazon or Apple of the world, all of the top platforms that are becoming trillion-dollar companies are successful because they are all in some way, shape or form, A.I. companies. Whether they leverage A.I. in their products or they focus specifically on having A.I. services such as Google and Amazon, and Facebook to an extent... In a nutshell, the data is what they need in order to deliver better products.

The platforms that run our government today be platforms that can capture data



much more easily than others. So smart government is built on big data and data capturing and so on. In that respect, we are in a much better position than most countries.

Culturally, we tend to look at the future in a different way to other countries. In most countries they focus on A.I. and neglect any other other technology. But the world changes.

Some technologies improve, other things are created... So, H.H. Sheikh Mohammed Bin Rashid announced in May of last year, after we had the A.I. mandate, we discussed Blockchain with his teams. A.I. can leverage a lot on Blockchain and vice versa. Since there are natural synergies between both technologies, why aren't we working on both? The Blockchain Strategy is going to be the foundation of every A.I. system that we build. A.I. and blockchain are married together in the U.A.E. to ensure secure systems and smart systems.

How are you leading the A.I. revolution?

PRH

OA

Today, the game is a game of policies. A.I. companies want to test their solutions and deploy their systems somewhere. Most countries don't allow them because their policies and regulations are not friendly. We are willing to work around that and work with the companies in order to bring them to the U.A.E. and then export from here. So, it's a win-win situation.

We tend to think that tech is the future. Tech is an enabler of the future. In the UAE, we care about R&D and we care about ensuring that we are able to lead when it comes to being future-ready.

A great deal is happening on the semi-government and private sector level. The model we aim to achieve is one that enables the ecosystem for start-ups to thrive, whether A.I. or other innovation-driven enterprises. Careem is a prime example. We understand that we are a hub for that in the region and we understand that the U.A.E. is very advanced in how the government operates and how fast it moves.

A.I. and Blockchain are married together in the UAE to ensure secure and smart systems



PRH How are you managing the responsibility of leading this A.I revolution?

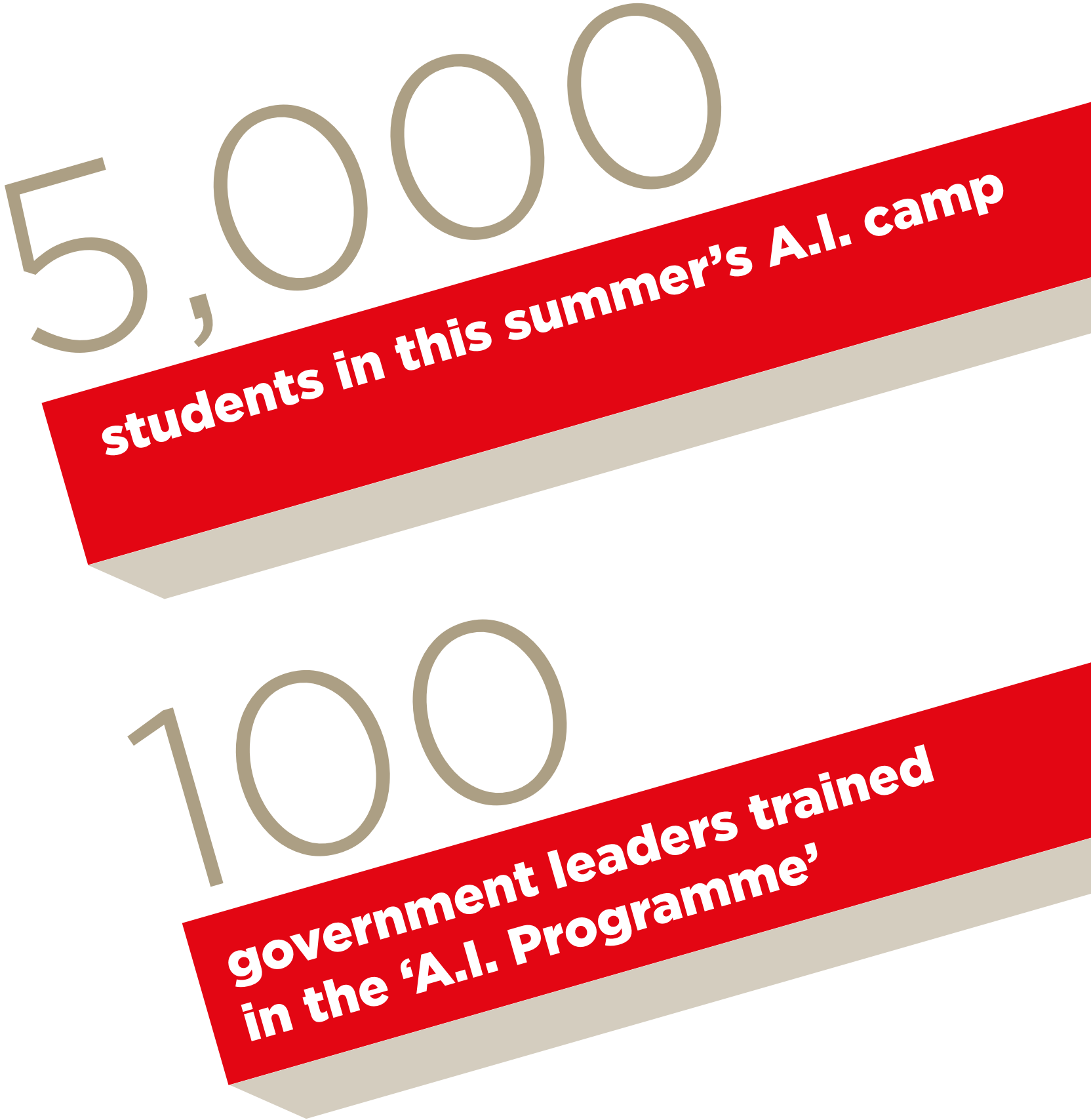
OA Personally, I believe passionately that the new way moving forward is going to be towards responsible development of technology. We need to think of the long-term impact or we may create something bigger or worse than climate change. No technology is good or bad, every technology is but a tool and all these tools can be used to do good. If we push towards responsible development, the future is going to be bright. If not, there may be some sort of revolt against technology. We need to look at this seriously and where we want to go with this tool. With A.I. we have a technology that’s very transversal and we should look at it like industrial development and climate change.

PRH Why are the Emiratis so forward-thinking and largely considered pioneers for the region?

OA Governments need to be agile and pro-active in terms of development. We need to help governments evolve, ours and others. So, H.H. Sheikh Mohammed bin Rashid Al Maktoum launched something called the World Government Summit which is a platform where governments from around the world come together to share best practices, hear experts from different fields, with the aim of becoming a school of sorts for governments. And in the last 5 years, his vision has become a reality.

Most countries that are oil dependent, focus on oil. I remember His Highness Sheikh Bin Zayed Al Nahyan at the World Government Summit saying ‘I want to celebrate when we export the final barrel of oil 50 years from now’. It takes for a person to be visionary to say that, that we need to move away from oil and invest in the people. It takes understanding that we need to innovate.

Our leaders are also what drives us. Everything they do is about how to improve our lives in every way, from government to services to having the best infrastructure and so on. So, we as citizens strive to do our best in return. ●



**ADNOC**

Interview

UAE MINISTER OF STATE &
GROUP CEO OF ADNOC

**His Excellency
Sultan Ahmed Al Jaber**

PRH

At your opening address at ADIPEC, the event that aims to ‘set the agenda of the global energy conversation and place Abu Dhabi and the UAE firmly at its center’, you spoke of ‘Oil and Gas 4.0’. What did you mean by that?

SAJ

We are at the cusp of a great leap forward in human progress- progress that is the result of 50 years of remarkable economic growth. Today, for the first time in history, over half of the world’s population is in the middle class. Digital innovation is delivering unparalleled levels of prosperity, giving rise to an era we know today as the 4th industrial revolution. I think the oil and gas industry and ADNOC can contribute a great deal to this new era. Against this background, ‘Oil and Gas 4.0’ is an initiative that can act as a catalyst to enable the 4th industrial revolution.

Oil and gas will continue to play a major role in helping global economic growth and with that, comes demand for energy. In fact, by 2040, despite some of the hype out there, oil consumption will rise by at least an extra 10 million barrels per day. Demand for natural gas will grow by 40% and demand for higher value petrochemicals and polymers will experience the strongest demand of all, growing an additional 60%. This growth tells us that we are at the forefront of a new age of opportunity for our industry.





[Click here to view ADIPEC Opening Speech by Dr. Sultan Al Jaber, ADNOC Group CEO](#)

PRH

So in a sense you are saying that the Fourth Industrial Revolution depends on oil and gas. That is a big responsibility. How is ADNOC stepping up to meet it?

SAJ

We cannot do this by thinking ‘business as usual’. We have to think out of the box, step out of our comfort zone. We have to embrace disruption. We have to embrace technology rather than resist technology. We need to be innovative, to allow for this industry to continue to be a destination for youth, not only for the veterans of the industry. So we need to incubate new ideas to attract youth into this very important business.

While advances in technology are impacting every industry, we must now focus on how it can advance our own. This industry historically has represented the cutting-edge of technology. Today, we must admit that we are now, in some ways, being seen as followers rather than leaders. Yet, we have what it takes to actually lead and to transform and to act as a real beacon of change. This is exactly what I am trying to encapsulate in our “Oil and Gas 4.0” initiative.

We recognize that to fulfil this mission we must expand our partnerships, apply the latest technology, leverage our assets and optimize our resources. At ADNOC, we believe Artificial Intelligence, Big Data and Blockchain can enhance our operational efficiency, maximize our performance, drive our profitability and empower our people. Predictive analytics will significantly reduce our operational costs. Our state-of-the-art Panorama Digital Command Center will mine for, monitor and measure terabytes of information across our operations. Yet we are still scratching the surface of how technology can truly unlock our full potential. Our ambition is to extend its power across our entire value chain from drilling platforms to trading platforms and we are determined to make ADNOC the destination of choice for a



highly skilled, digitally native workforce and a home for the brightest and best of our young people by embedding innovation into every aspect of our business.

We need to put ourselves back in the driving seat of innovation and I have no doubt that by embracing ‘Oil and Gas 4.0’ we have the minds, the capability and the will to do exactly that.

PRH

Earlier this year you announced a 45 billion USD investment downstream. How does this fit into your overall strategy?

SAJ

In response to the call to action by His Highness, the Crown Prince Sheikh Mohammed, we have embarked on our ‘Smart growth 2030’ strategy, which is centred around three main pillars. We want to be more profitable in the upstream by attracting strategic and value-added partners that bring technology, know-how and access to new markets. The second pillar is attaining a sustainable and economic supply of gas to ensure a captive source that will continue fuelling our economy, while enabling us to transition into becoming a net exporter. And the third is to stretch the dollar from every barrel we produce by expanding downstream; so we are doubling our refining capacity and tripling our petrochemical capacity.

We are enhancing our state-of-the-art facilities in Ruwais to build the single largest integrated refining and petrochemical complex in the world. This expansion will enable a true plug and play ecosystem, an ecosystem where partners can invest and grow alongside ADNOC. So, the 45 billion is in a way, putting our money where our mouth is. It demonstrates that we are genuine, serious and committed along with our partners to advance and accelerate the downstream development here in Ruwais.

In parallel, we are identifying the right strategic commercial investment opportunities beyond our borders, in the downstream area, which will allow for us to ensure more crude placement and penetration into new markets where we don’t exist today.

Oil and Gas 4.0 is an initiative that can act as a catalyst to enable the 4th industrial revolution





PRH You also announced a sizeable gas strategy...

SAJ Over the past two years, we have been focused on identifying ways and means of providing a sustainable economic solution for gas in order for us to continue contributing to the economic growth of our economy. What I can comfortably tell you is that this has been a brilliant exercise in that we have tapped into vast reserves that had been untapped in the past for technological and commercial reasons. The beauty of our initiative today is that we've developed a master plan that integrates all sources of gas into one pool. I can now confidently say that we will have a sustainable supply of gas, by integrating advancements in technology that have taken place over the past few years into our operations and through our ability to attract strategic investors like the ones we have recently announced. For example, we just signed a historic agreement with Total, marking the birth of unconventional gas in the UAE. ENI and Wintershall have taken 25 and 10 per cent stakes respectively in a massive offshore ultra-sour gas project, and there's more to come. In short, we have now unlocked the potential of our gas reserves by defining a new commercial formula which will enable the UAE to attain self-sufficiency and to transition into a net exporter of gas. ●

45bn USD
ADNOC's expected expansion into downstream

60%
expected growth in demand for gas by 2040

www.adnoc.ae



ENABLING A SMART & SAFE DIGITAL WORLD

DarkMatter Group enables businesses and governments to maximise the benefits of the digital world safely and effectively through its four main divisions:

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DigitalX1, the Digital Transformation and Applied Technologies practice

DigitalE1, the Education practice

Government Solutions, the practice dedicated to helping governments strengthen their defence and security posture

DarkMatter Group provides bespoke digital and cyber solutions for vital sectors including defence, intelligence, civil government, financial services, transportation, energy, and telecommunications.

[Learn More](#)

Jumeirah At Etihad Towers - Observation Deck



TALENT IS THE NEW OIL

That may sound like the title of an unread World Bank report or the motto of an HR consulting firm, but talent is what turned the neat rows of fruit trees in Northern California into the innovation factories of Silicon Valley, and it is the headline of the United Arab Emirates own innovation transformation.

“What is interesting here is that the UAE has made very significant investments to create the right conditions for innovation,” said Karim Sabbagh, CEO of cybersecurity firm DarkMatter. “To illustrate, the favorable conditions in the UAE and its reputation internationally have enabled us to build a community of around 700 colleagues in the country with research and development centers in Finland and Canada. In fact, we have around 60 nationalities represented within the Group, with a large bench of engineers and researchers including a healthy number of PhDs.”

The Emirati space program follows the country’s ethos of co-creation and knowledge transfer, as they prepare an army of engineers and astronauts in a joint development approach with South Korea where droves of Emirati engineers were based for years working with their Korean counterparts. “We want a national astronaut core and we will keep replenishing that core” sending their nationals all over the world to prepare explains Salem AlMarri from the Mohammed Bin Rashid Space Centre in Dubai.

Another example: the Canadian Dr. Rakesh Suri, heads the Cleveland Clinic Abu Dhabi who confesses how mind-blowing it is to see “the journey of innovation which started in the US, took us around the world, is now proceeding right here in the UAE. We are again re-importing these learnings back to the US, back to the UK, Europe and abroad”.



Burj Al Arab, the first iconic building that helped put Dubai on the world map.



When Christoph Mueller, the German Chief Digital and Innovation officer of Emirates, the world’s most famous airline, was asked in his interview what he thought of innovation in the UAE he reminded us that the most important innovation of all was the business model of building an airline in the middle of the desert and to connect the whole world via that gravity point.

The UAE tops the Arab world’s list of most innovative countries, and the Emirates ranks number 11 in ease of business worldwide. Its architecture and structural engineering feats have produced contemporary icons –from the dazzling latticework of the he Louvre Abu Dhabi to the 163 story Burj Khalifa piercing the desert sky or the first to make Dubai world famous, the Burj Al Arab.

But innovation isn’t just a deep bench of engineers, a buzzing start-up incubator, or progressive urban design. It is a combustible commodity, a kind of natural resource that requires a platform of forward-leaning policies and infrastructure to catalyze into products, applications, technologies, and companies that will fuel just about everything in the future.

Which is why this Arabian Peninsula country has an entire ministry devoted to nurturing artificial intelligence (part of a roster of new ministers who were announced in October 2017 including: a minister of the future, a minister of food security, and a minister of happiness). Artificial intelligence, or AI, is at the forefront of the country’s vision of how the future will work.

The UAE has flourished for decades as one of the world’s great logistics centers, where the global supply chain coalesces. Part of the reason startups like Seafood Souq, a B2B ecommerce platform that aims to make the seafood trade more transparent and efficient believe there’s no better place than Dubai for the company’s HQ. The country has the good fortune of being within 4 hours flying time of one-third of the world’s population and within 8 hours flying time of two-thirds of the world’s population, but the significance of Dubai Airports for global logistics





Cleveland Clinic Abu Dhabi, a the impressive result of a partnership between Cleveland Clinic and Mubadala.

is the result of more than geographic happenstance. “Technology has played a massive role in this,” said Paul Griffiths, CEO of Dubai Airports, which is the largest international airport in the world, handling 90 million passengers a year, up from just 32 million when Griffiths took the helm of the airport eleven years ago.

“We tend to think that tech is the future; tech is an enabler of the future,” said Minister of State for Artificial Intelligence, H.E. Omar bin Sultan Al Olama, who recalled when H.H. Sheikh Mohammed bin Rashid Al Maktoum launched the World Government Summit in 2013 to galvanize thinking on innovation and future technologies, it quickly became a platform in which governments from around the world could meet to share best practices, hear experts from different fields, “with the aim of becoming a school of sorts for governments,” said the AI minister. “And in the last 5 years, his vision has become a reality.”

These twin visions of the UAE as an indispensable hub for gathering innovators and AI and Blockchain as key technology platforms for supporting, well, everything in the future, come together in the UAE’s ambitious showcase: Expo 2020 Dubai, which expects more than 190 nations to participate, providing a proving grounds for the latest innovations “from every corner of the planet, and Expo 2020 Dubai is set to offer an exciting glimpse of the future on a global scale,” said Iman Alomrani, Vice President – Applied Intelligence, Innovation and Future Technology, Expo 2020 Dubai.

Even with more than 150,000 visitors per day expected to attend the conference, said Alomrani, her objective is “to provide a personalized experience for each visitor by using applied intelligence applications and content to ensure they have a



seamless and meaningful time at Expo 2020. Artificial intelligence is one example of a current technology that can help us deliver a unique personal experience for each Expo visitor. We see data as our biggest ally and technology as a tool to deliver insights to the organization as well as memorable personal experiences for every visitor.”

For the policy-makers and business leaders in the UAE, artificial intelligence is the foundation on which the UAE builds the scaffolding of innovation that will support the walls of the future. This is the architecture that provided a blueprint for a start-up like Careem, a rapidly expanding ride sharing service based in Dubai that is operating in more than 100 cities. Just as it is the nervous system of a stalwart giant of UAE industry, DP World, one of the largest trade enablers in the world which is reinventing the supply chain with such new technologies as LogiGate, a smart phone app for managing warehousing and land transportation services, Cargospeed to enable faster deliveries of palletized cargo, and Blockchain applications expected to revolutionize the logistics industry.

“With the Blockchain authentication, we will ensure that the information is reliable and in real time which is good for security, good for customs, good for the customer, good for the shipping line, everybody will be part of it,” said Dr. Sultan Ahmed Bin Sulayem, Group Chairman and CEO of DP World.

However focused the UAE’s innovation policies are on AI and logistics, the country continues to pour resources into other emerging technologies. Madar Farms, for example, is a sustainable farming company in the UAE dedicated to low-carbon agriculture as a core pathway to the UAE’s food security goals. The company leverages new technologies to harvest sustainable produce in the desert kingdom.

And His Highness Sheikh Mohammad Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai in 2017 opened the world’s largest single-site solar park located near Al Qudra between Abu Dhabi and Dubai.

The country’s traditional energy economy isn’t exempt from innovation fever. The Abu Dhabi National Oil Company recently announced the building up of the city of Ruwais as the Silicon Valley of the petrochemical industry; the company, which accounts for about 6% of global oil production, will invest \$45 billion in operations in partnership with other leading petroleum companies over the next five years to inaugurate the world’s largest refining and petrochemical operational center.

“I believe it is a very clever move from the UAE to go towards downstream and say, ‘We use our oil. We put value added products out into the market,’ said Dietmar Siersdorfer, CEO of Middle East and UAE Siemens, one of the partners in the Ruwais project. “Value added products are needed in the world and they ship them either directly to the markets or even better, they invest in downstream operations in other countries, like China for example.”

Talent is the new oil. But in the United Arab Emirates, the mandate of hyper-innovation means even oil is the new oil. ●





DP WORLD

Interview

GROUP CHAIRMAN AND CEO OF DP WORLD

Dr. Sultan Ahmed Bin Sulayem

PRH

How concerned are you by the trade wars and the impact of increased protectionism on DP World?

SS

We are not too concerned about it. Of course, it is creating scepticism and uncertainty in the market. This talk of protectionism disrupts the market but in reality, people will always trade, and producers will always find a buyer and if a market becomes closed, they will find another market. People will continue to trade.

The trade war or the dramatization of the trade war in my opinion is mainly in the media but in reality, I see it as a negotiation tactic. When you look at the facts, you see it. Had we believed the news, or the flavour of the media that there was going to be a trade war between the United States and Mexico or Canada. The truth is they signed an agreement. It was a negotiation tactic which worked. When you negotiate, there are threats. When you come to the table and agree to mutual benefits, you have a deal that addresses concerns of both countries. Fair trade is very important.

The key that people need to understand is that there is a difference between free trade and fair trade.

Yes, the talk of the trade wars is disrupting the market and creating uncertainty. Banks take notice of that, adjust their expectations and their lending policies and factor into consideration the worst-case scenarios, but basically the effect is not going to be as harsh as everybody is expecting. It may be in the immediate or medium term, but it will die out when the deal is done.



PRH

How do you see Dubai's role and DP World's role in world trade changing in the future?

SS

We at DP World are an international company. Dubai is an important part of business and of value. We have many places around the world from Australia to Canada and Latin America and everywhere in between. We are a company that is customer-oriented. We create facilities where the customers want us to be. We look at areas where there is growth. I'm very passionate about Africa, about Latin America, Canada and certain areas of the Far East.

Trade in the world today is changing. Technology is affecting our business. The online business today is shaping how people get their goods and services. It's amazing! We have redefined our role to be in line with the developments in the world. For example, traditionally our role began when the ship came to dock until the cargo leaves the gate, which was when our role ended. Today that is not sustainable. Today we need to be involved in the entire supply chain. We won't necessarily own trucks, or planes or trains. But we want to start our business from when the cargo leaves the factory to the time it reaches the customer. If we fail to do that, we will miss an opportunity to provide value to our customers. The services have to be complete.

To deal with that, we started to develop more logistics parks outside of Dubai. We are beginning here, Peru, Dominican Republic and certain hubs to give the customer more services. There are a lot of inefficiencies in the supply chain, so they hurt us and the customers. So, we work towards resolving them. We are putting our expertise, know how, assets, resources and the information we have and are translating that into efficiency. We are experts in certain areas and rather than allow people to struggle to get their cargo, we will facilitate. We believe that we can bring efficiency.

The two main players and biggest investors in the supply chain are the ports and the shipping companies. In between there are costs associated with the supply chain that have nothing to do with the supply chain, some are storage, some are trucking, paper processing, and costs that add up. So, we are resolving that in certain areas.

With the Blockchain authentication, we will ensure that the information is reliable and in real time, which is good for security, good for customs, good for the customer and good for the shipping line





We are introducing some technologies, such as LogiGate, which is the same as in Dominican Republic, similar to uber but for cargo, so trucks that are in the city that don't carry at full capacity, can carry cargo in between. That worked very well in the Dominican Republic and they are accepting it here in Dubai.

We are also providing a new technology called NOW which is for wooden vessels. They come for cargo, but they have no idea what cargo they are expecting, or even destinations, so we are bringing the capacity of these dhows online to the consumers. So, the exporters will find it, book them and ship. Simultaneously teaching dhows how to work this way, helping them, and enabling us to move cargo fast.

We are looking at a blockchain system which we invested in. We have hired the smartest brains in the technology and we are developing an amazing system that will be launched next year and will essentially put the cargo owner in the driver seat; he will know his costs, where his cargo is, and he will realize whether this cost is the best or whether to find a better route. With the blockchain authentication, we will ensure that the information is reliable and in real time which is good for security, good for customs, good for the customer, and good for the shipping line. The beauty of this is that because DP World has physical assets, it gives us a better probability of succeeding.

Of course, we are using technology in our operations in the port as in the terminal. Technology is not just an option but a necessity. When you operate volumes of cargo like we do, it is impossible to handle it manually. I remember in the early 80s, when I started working here, we had computers. They were big and primitive computers. The port was traditionally where a strong person would earn more because they could carry more cargo. Now we have remote controlled cranes. It's no longer a harsh and dangerous environment. We are in the age of the brain and knowledge. Today it is more about how you use your brain and how innovative you are at finding solutions. In certain ports like Rotterdam, there are no humans at all. They are behind the scenes thinking and resolving problems and creating a solution and turning the solution into a saving for the company and an advantage for us. And that I believe is the future. The mechanical and repetitive jobs are no longer necessary.

Speaking of tech, what is DP World doing about cargospeed?

PRH

SS

Cargospeed is basically like hyperloop in which we started to invest. We must invest in R&D and it caught our attention because it can connect ports and cities with air speed possibilities in cargo. We studied its possibilities and became shareholders in the company. I think it's very interesting and is eventually going to be developed to the point where it can be used. However, just by getting involved in Hyperloop, we learnt a lot. One of the difficult issues, is how to get cargo into the loop. Those who developed it, did so managing to put people into the loop, much like a train station. For the loop to work for us, it needs to have the ability to put a container into the loop every 5 seconds which nobody knew how to do so that is the part we developed. We talked about all kinds of crazy ideas and managed to find a solution. That solution actually helped us to gain greater efficiencies in our yard. So, we are doing a pilot project not for hyperloop but for the fast operation with a small space in a terminal. When that is finalized, it's going to be one of the most interesting technologies that we achieve.





Regarding sustainability, I am aware you met Elon Musk, can we talk about your encounter?

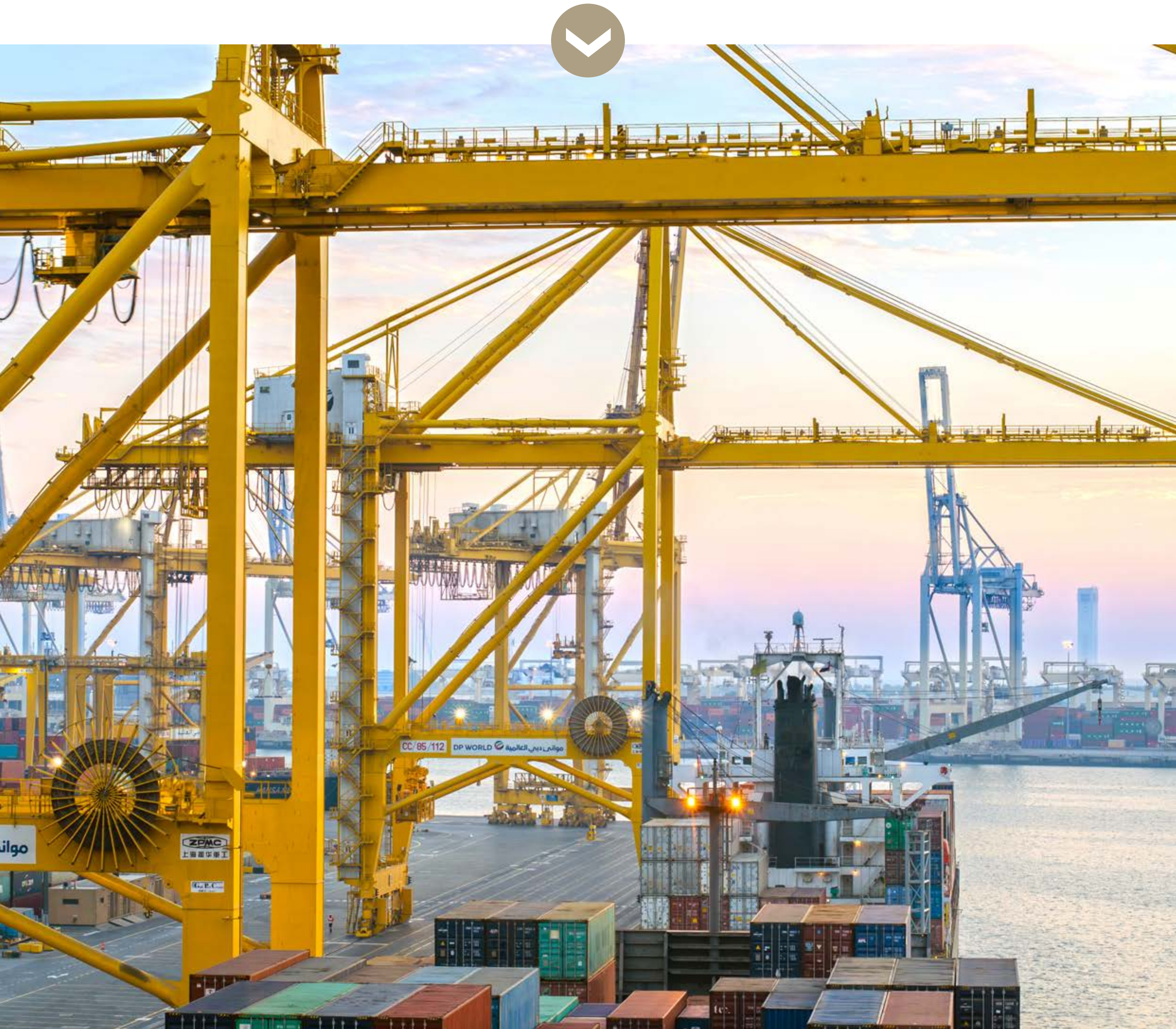


Elon Musk is creating this amazing battery which is easy to store and run homes. We have an investment in Africa and sometimes to go to the grid is too costly, and to generate through fossil fuels is environmentally costly. We will be looking at how we can utilize this system.

We are using it here and going green in every avenue. We will probably be the single largest user of solar as a company and we probably will be generating more than that which we need. We have technologies that we are using in order to use less fossil fuels, like in Rotterdam we converted from diesel to electric batteries. We are using cranes that use the weight of the crane to power itself, like in England.

Sustainability is very important for survival and with the limited resources in the world, we have to adapt. ●

<http://www.dpworld.ae/en/home>





MOHAMMED BIN RASHID SPACE CENTRE

Interview

ASSISTANT DG FOR SCIENCE AND
TECHNOLOGY SECTOR - MOHAMMED BIN
RASHID SPACE CENTRE (MBRSC)

Salem Humaid AlMarri

PRH

Firstly, congratulations on the successful launch of the KhalifaSat! Can we talk about why it differs from the DubaiSat1 and DubaiSat2 and why we are all excited?

SA

It's a real point of national pride and excitement. For those of us working on the project it was the culmination of a 15-year project. For me DubaiSat1 and DubaiSat2 were the pillars that set up the success of KhalifaSat. The objective early on was that we find a partner and we decided on South Korea and we worked with them on DubaiSat 1 on what we called the knowledge and technology transfer programme. We sent a team of about 10-15 people there over a 3-year period where they worked side by side with our Korean partners on building up their capabilities.

Once we successfully launched that satellite and got our first images, we immediately went into a joint development approach where we took 50% of our satellite development and our Korean colleagues took 50%. Our team increased to about forty engineers and then the team was also based in Korea for another 5 years.

So, you see why I believe these two satellites built the bulk and core of our engineering team. That technology transfer was very successful for us and the proof is that in 2013 our team came back and kicked off KhalifaSat and we said "this is the satellite that we have to develop on our own". That team of 40-50 engineers were able to transfer knowledge to another team of about 150 people, all of which UAE nationals, and 40% of which were women. Over a period of about 5 years we developed KhalifaSat here in our clean rooms in the United Arab Emirates.



We designed and developed and worked together as a team having acquired a lot of knowledge over the nearly ten years spent in South Korea in order to build this satellite. For us it has been a long journey. I started working here in 2005 before we were established and the first message that was given to me was that we wanted to develop our own satellite, so I was fortunate to be one of the first engineers given the task and we stayed on that path. I would say that the government here has zeroed in that science and technology is very important and have supported that path through and through. You can see in other countries that the appetite can get lost after a while. We are very lucky to have that support and that excitement as it's a very important sector for us and for the country.

PRH

In today’s world having a satellite is considered a leap in technological development. Countries use it for communications, military or other developmental purposes. Can we talk about the purposes here?

SA

Definitely the most important factor is the usage of these satellites. The 3 satellites that we have in orbit, DubaiSat1, 2 and KhalifaSat are earth observation satellites. The objective of these satellites is that we image all of the globe, any area we want, that we utilize them for a multitude of purposes. We use it for environmental purposes, for disaster monitoring, change detection, for town planning, coastal monitoring... What we do with our imagery in the UAE is that we provide it free of charge to all government departments and we work with them jointly on developing algorithms that are specific to their core business to encourage the use of satellite technology.

For example, we are working with the Ministry of Environment on palm tree detection and health, with a satellite image you are able to take an image of a certain area every couple of days and through an algorithm that we’ve developed in-house, you are able to count the number of palm trees and detect their health. These types of applications are very important for government departments such as them. It really helps shape the mentality as well besides the efficiency.



The same applies to Dubai Municipality. We overlay images at intervals to revise what has changed and we link that to their building permits, so they can detect any changes and anomalies.

PRH

You have the Mars Exploration project coming up in 2020 and also the colony in 2117.

SA

With what we have been developing in our earth exploration aspects we focused heavily on developing very strong on Emirati engineering capabilities. We worked with international partners on the science aspect and went back to our knowledge transfer and our way of working. We worked closely with universities locally and internationally on developing scientific capabilities on how to study this data. We will build a mission – a satellite to Mars that will have 3 instruments that will be focused on the Martian atmosphere which will give us an atmospheric view of a full Martian day, something that has never happened before. It complements data from previous missions very well such as the US MAVEN mission, and the Indian Mars orbiter that are looking at different areas of the atmosphere. And all of these are very helpful if you want to send humans to Mars eventually.

The way the UAE is working is that this is a mission for Martian scientists, for scientists generally and for the world.. We have a very strong science team that is constantly working with universities locally, building centres to study physics, space science and planetary science.

This mission will be launched in 2020 and it should take about 7 months to get to Mars, arriving in February 2021. And then we have an operational lifetime of 2 to 3 years.

On the Mars mission, we are working with the University of Berkeley in California, the University of Arizona and the University of Colorado Boulder in the US. They have a very strong core of scientists in Martian science, and they are helping build up our team.

PRH

And the Mars 2117 colony project?

SA

We are very lucky here in the UAE as we have a 100-year strategy to support humanity getting to Mars. and projects that outlast our generation and that generations to come will work on. The UAE is not saying we will do everything, but we will be a player and a contributor, and we will focus on niche areas that we think

We are very lucky here in the UAE to have a 100-year strategy to support humanity getting to Mars





are very important and can contribute globally. The Mars 2117 strategy is all about developing useful projects and technologies that will be very important towards getting humans to Mars but also very important here in the UAE.

The first project that we have is what we call the Mars Science City and it's a very large domed structure with 4 or 5 focus areas. One will be research in energy efficiency, another in water efficiency and recycling, the third will be food security and how to sustain oneself in space - also important to a country like the UAE. They are what I would call national challenges in the UAE - water, food and energy. And they are challenges anywhere in space, ISS or Mars.

The fourth area is what we call Mars analogue. This is basically a simulation of what life might be like on Mars. We are talking about a round trip of about 3 years in a very harsh difficult environment, which is also very hard psychologically. It's a preparation for the trip. You put professionals and astronaut candidates and plan missions as if they were on Mars, with the same conditions, communication delays etc for long periods of time. This is happening in different areas around the globe. NASA works on this in Hawaii, the Russians in on the Mars 500 experiment.

We will focus on mission profiles that haven't occurred or with technologies that haven't been utilized in this kind of analogue. That will act as platform for international scientists and space agencies to come and work with us. We are already seeing a lot of interest in this and are setting profiles for collaborative projects. ●

<https://mbrsc.ae/en>



2020
Mars Exploration project

2117
Mars 2117 Colony project



DARKMATTER

Interview

CEO, DARKMATTER

Karim Sabbagh

PRH

Could you tell me what Dark Matter is doing for Expo 2020?

KS

DarkMatter Group is the official cyber security provider to Expo 2020. Our remit is to provide a wide range of services, from security management and monitoring, to risk assessments, incident response and technical forensics before, during, and after Expo 2020.

The ever-growing adoption of connected devices globally means that digital platforms will not only play an increasingly important role in our daily lives but will also help shape each visitor's experience at Expo 2020, making cyber security crucial to the success of the event.

I would also add that some of the digital transformation and enablement work we're currently doing in the UAE could also contribute to Expo 2020.

To illustrate, DarkMatter Group is engaged in the development of the UAEPASS as recently announced at GITEX by Smart Dubai and the Telecommunications Regulatory Authority in collaboration with Abu Dhabi Smart Solutions and Services Authority. UAEPASS provides a single digital identity that allows all citizens and residents to access services for both local and federal government entities, in addition to other service providers. The solution introduces mobile based authentication to users who can simply validate their identity using their smartphone. It also allows users to digitally sign and validate documents, in order to minimise their visits to service centres to sign important and time-sensitive documents. You could therefore envisage the use of this digital identity in the context of mega events such as Expo 2020.

Another illustration is the recent announcement by the Abu Dhabi Smart Solutions and Services Authority along with DarkMatter Group showcasing blockchain





implementation in a bid to accelerate the “one government” service model. The underlying blockchain technology will complement the digital identification and transactions capabilities of the UAEPASS with efficient, immutable, and secure record-keeping. Again, one can appreciate the relevance of this body of work to mega events such as Expo 2020.

PRH

What is the state of the innovation ecosystem in the UAE?

KS

You may be familiar with the Global Innovation Index, and in fact I had the privilege of working on this tool when it was introduced around 10 years ago. The objective was to develop a framework that would allow experts and policy makers to measure nations on the topic of innovation.

According to the index, the UAE ranked 38th in 2018 which places us first in the region. This is no small feat and I believe it points to 2 main factors.

First, and as I have said in the past, no single nation has a monopoly on innovation. In fact, when you consider the top ten nations, and specifically the top five, you will see that the smaller ones tend to do well, which is one of the fortes of the UAE. We’re relatively a small nation and I think that this gives us the advantage of developing new ideas, sanctioning and executing them much faster than larger nations. As a

“The cyber security posture of the UAE is constantly improving”



result, the UAE federates and executes more effectively than many larger nations.

Second, the ranking measures the investments and returns that the UAE has made on the innovation front. On the output side, the index captures knowledge and technology, and creative outputs. Our cyber-related work fits in the first group. On the input side, the index considers Institutions, Human Capital and Research, Infrastructure, Market Sophistication, and Business Sophistication; the UAE ranks 24th in this area.

What is interesting here is that the UAE has done very significant investments to create the right conditions for innovation. DarkMatter Group exists today to fill the gap where a national digital and cyber transformation champion is needed. We, in fact, benefited from these favourable conditions. To start with, we were able to tap into, leverage and build on the national strategy for digital and cyber security transformation. We also benefitted from a favourable digital and business environment; our business is all digital and without the many enablers available to us, we would not have achieved so much in such a short period of time.

To illustrate, the favourable conditions in the UAE and the reputation internationally have enabled us to build a community of around 700 colleagues in the country and research and development centers in Finland and Canada. In fact, we have around 60 nationalities represented within the Group, with a large bench of engineers and researchers including a healthy number of PhDs. Again, this was greatly helped, in my opinion by the favourable environment in which we operate.

All areas of our business are benefiting, and even the ones dealing with fundamental research. To exemplify, the DarkMatter Group has developed the crypto library that underpins some of the most essential communication networks in the nation. Notwithstanding this milestone, our team is already invested in research and development work pertaining to post-quantum crypto. In the near future, this will become a critical capability for the UAE.

PRH

There are huge advantages to being in UAE. What would you say are the challenges?

KS

The UAE has relatively young institutions, and there are pros and cons to that. To illustrate, our business is highly dependent on top-tier talents. In building our corps of UAE nationals, we rely on leading technical colleges and universities. As these institutions are relatively young compared to their global peers, they may not have the same decades-long depth in research and development. At the same time, they can demonstrate a greater affinity to embrace new fields of education and stand-up on a short runway new degrees and programs. Cyber security, AI, data science, and robotics are some of the new programs that come to mind. Through our close collaboration with UAE-based institutions, we are already seeing significant progress in these veins.

The progressive economic agenda of the UAE is also gaining increasing recognition globally. Having said that, we are competing for top talent in scientific fields with long-established STEM-centric industrial clusters in North America, Europe, and some parts of Asia. Even when we're not in a competing mode, the fields in which we are developing our activities in digital transformation and cyber security are in fact facing dire shortages of relevant talent. I would posit that this is indeed a global challenge.



I personally believe that these challenges, and others, make us better day-by-day. Reflecting on our trajectory, DarkMatter Group was established in November 2015. Our remit back then was focused on cyber security which; it was expanded soon after to cover secure communications leading to the highly successful secure phone Katim program launched in 2017. Along the way, we established xen1thLabs which conducts cutting-edge zero-day vulnerability research, which feeds in the testing and validation activities it conducts across crypto, software, hardware and mobile technologies. In our view, our lab is unique in the region. Fast forward to present time, our capabilities cut across the spectrum of digital transformation and cyber security and our impact on the national agenda in these fields is growing.

PRH

How cyber secure is the UAE?

KS

The UAE, along with other nations, is facing a phenomenon called “tech-tension” – where our love and rapid adoption of technology is not being matched by the ability of individuals, businesses and governments to protect themselves. To prosper, our digital society must mature and become cyber resilient. Our belief is that organisations must transform their cyber posture from static readiness and defence to a holistic digital maturity that embraces the cognitive nature of modern business.

The cyber security posture of the UAE is constantly improving. At the same time, we must recognize that the threat surface is expanding rapidly, and we must therefore double-down on our efforts along with other stakeholders to secure the nation.

I don’t currently see the results of these efforts leading to a deterministic outcome. Said differently, security is not a fixed end point. Securing the nation means that we must build resilience in our capabilities so that we can address emerging threats as they surface. This adaptive model, which is rooted in the UAE way-of-thinking for constant evolution, will ensure that our capabilities will continue to evolve and give us greater confidence in the future.

Interestingly, the Threat Intelligence Report we recently published underscores the very rich threats and vulnerabilities landscape in which we operate and demonstrates how DarkMatter Group is contributing to addressing these issues. It is worth noting that cyber security is a national priority, with specific policies, regulations and directives to support this agenda. And, innovation is at the heart of serving this specific agenda. ●

<https://www.darkmatter.ae>





CAREEM

Interview

CEO & CO-FOUNDER , CAREEM

Mudassir Sheikha

PRH

Careem is the second unicorn in the Middle East and has been growing at a rate of almost 10x a year for the past three years, making it the fastest growing tech company in the Middle East, and the biggest success story in the region. Let's start with why you chose Dubai and the UAE as your headquarters?

MS

The opportunity in the region is massive, not just in mobility but also in the broader internet space. Just to give you some facts and figures, currently 2% of the consumer spend goes to online sources. The consumer spend is US\$1.8 trillion, so that makes the online opportunity today US\$36 billion. Our estimate is that by 2030 this number will be closer to half a trillion dollars and if you ask yourself what needs to happen for this spending to move from offline sources to online, there is a lot of infrastructure that needs to be put in place and a lot of online services that need to be developed, evolved and marketed, and we believe that that is a significant opportunity in the region. That will require the region to build very deep technical capability. That is if we want to serve this opportunity ourselves as the other option is that we let the outsiders come in and take this way from us. The opportunity to take the region online requires significant technical talent and we cannot think of a better place to build this type of business than the UAE.

There are four reasons that make the UAE special. The first is, if you spend just a day or two here you will realise that the quality of infrastructure is world class, in fact there are times when I go to some parts of the US and they pale in comparison to what the UAE has built in terms of not just the physical infrastructure (roads, office space, education, healthcare etc.) but also social infrastructure that is quite sophisticated and quite deep. This is a huge pre-requisite to build these types of



technology companies. The second factor which builds on top of this infrastructure is therefore the value proposition for top talent. If you need to build a business like Careem or any other technology business you need world class engineers, data scientists, machine learning experts, to come and work with us. Dubai and UAE is not just able to attract back the talent from the region that had left, but is also able to attract other global talent. The third thing that the UAE offers is access to the region. We see Dubai as the gateway to the region. This region has 700 million people all the way from Morocco to Pakistan, which is the footprint that we operate in. It is a significant opportunity and Dubai is an interesting melting pot, you can find people from everywhere and it is very well connected in all senses. It is truly a gateway to this large market that we call the greater Middle East. Then there is one special thing that the UAE has as well which is ambition. It is very inspiring to have seen what has happened in this country in a matter of 15 to 20 years and to see the vision of the leaders, and to see them executing that vision.

PRH**How advanced is the start-up ecosystem in the UAE?****MS**

The ecosystem has come a long way in the last five years since we started. When we started in 2012 not a lot was getting invested here, but having had some successes, some small exits and now the acquisition of Souq by Amazon, and the fact that we have reached this interesting “unicorn” milestone, there is starting to be a lot more excitement in this ecosystem. You see this across the board, you see this in easier access to capital, where a lot of family offices and other investment offices are starting to invest in technology start-ups as opposed to more traditional sectors. You also see this in the risk appetite of top talent to join start-ups. Lastly you also see more appetite from the eco-system to embrace products that are developed by start-ups. So, all in all the ecosystem is on steroids, it is growing rapidly. You see more investments happening in start-ups than ever before, and my expectation is that the ecosystem, with UAE as a hub, will start going after more and more opportunities to take the region forward. If you want to start a company, you want to solve a problem. The bigger the problem, the bigger the opportunity. We have a lot of challenges in the region so there is a lot of opportunity and as the funding becomes available, and the talent becomes available, you will start seeing a lot more advances in the fortunes of the region.

We think this is a half a trillion-dollar opportunity over the next five to ten years.





How have you managed to secure funding in the past and what are your plans for the future?



We have raised north of USD\$700 million to date. Some of the successes that have happened out of the Middle East have changed that. We believe that over the next five to ten years there will be multiple billion-dollar business that will come out of the region because the size of the opportunity is so massive. Just that US\$500 billion that will move from offline to online spending needs a lot of services and internet infrastructure to enable it. That's where we feel a lot of funding will happen in the region and that's where the future of Careem lies as well.

\$36bn

estimated value of online opportunity in the region

14%

percentage of the MENA population that has a bank account



What is the key to your success and where are you heading next?



The opportunity in the region is huge, there are 700 million people that live in this region. The internet is an opportunity to leapfrog our people into the digital future. We think this is a half a trillion-dollar opportunity over the next five to ten years. So naturally when there is such a big opportunity in front of you and if you are a company that is in the leading position to realise that opportunity, which we believe we are, then there a significant amount of global interest and there is interest to invest, there to interest to merge, there is interest to acquire. We are big believers in the opportunity and we are excited every morning to come in and go after it. Not just in terms of our own success but also the bigger opportunity to improve the lives of our people. The ambition of Careem is to simplify the lives of the people and to build an awesome organisation that inspires. That's what keeps us going!

We are already in 120 cities and 15 countries, and we will be launching a few more countries and cities in the next 6 to 9 months, but the bigger focus is to go from being a mobility provider to being an internet platform. So, what you will see more from us as opposed to launching new cities, is launching a lot more new services in our existing cities. If you look at cities in Pakistan for example you will see that we now also have motorbikes and rickshaws. We've just launched "Careem Bus" in Cairo as customers expect the same high-tech experience across all services and more people taking public transport means less pollution and more affordable ways to travel. You will see us launching courier and delivery services in many parts of the region, so we will be going deeper in our existing cities and starting to become the internet platform that people can rely on for their daily needs as rather than going to a lot of new countries and cities. ●





CELEBRATING INNOVATION, CELEBRATING THE WORLD, WITH EMIRATI HOSPITALITY

When the first of an expected 25 million visitors begin arriving in Dubai for Expo 2020, it is not only the achievements and aspirations of 190 participating countries that will be on show.

The latest world's fair will also serve as an unprecedented opportunity for the host nation, the United Arab Emirates, to demonstrate to the world how investments in innovation, education and technology have positioned the country at the cutting-edge of the global economy of the 21st century.

In the run-up to the 50th anniversary of the formation of the UAE in 2021, the national government has put the development of a knowledge-based economy at the heart of its strategy for growth and prosperity. In less than a decade since the publication of an inspirational plan named Vision 2021, the UAE has managed to re-orientate much of its economy away from hydrocarbons and towards high-growth sectors such as services, trade, transport and technology.



“In 50 years, when we might have the last barrel of oil, the question is: when it is shipped abroad, will we be sad?”, Sheikh Mohammed bin Zayed, the Crown Prince of Abu Dhabi, famously asked delegates to the World Government Summit in 2015. “If we are investing today in the right sectors, I can tell you we will celebrate at that moment.”

To steer those investments in the right direction as Vision 2021 nears its completion date, the UAE government is now implementing a range of national strategies covering innovation in general as well as specific topics such as the fourth industrial revolution, blockchain and artificial intelligence. As part of this drive, the UAE has even appointed the world’s very first minister for artificial intelligence. “Technology is an enabler of the future,” says Omar Bin Sultan Al Olama, who holds that position. “In the UAE, we care passionately about investing in research and in development and about ensuring that we are in a leadership position when it comes to being ready for the future.”

As the Expo 2020 site takes shape in Dubai, the event’s organizers are billing the fair as a festival of human ingenuity that will celebrate the achievements of the UAE and of participating countries, at a time of massive technological change around the world.

Under the overarching theme of ‘Connecting Minds, Creating the Future’, for the first time at a world’s fair all country pavilions will be organized not geographically but according to the three so-called subthemes of Expo 2020 – Opportunity, Mobility and Sustainability.

“Geography and geographic distance is irrelevant when it comes to bringing different types of innovation together,” explains Reem Al Hashimy, UAE minister of state for international cooperation and director general of the Expo 2020 Dubai Bureau. “We see Expo 2020 as an extension of what we are doing here in the UAE to bring different people together and to fill them with a sense of inspiration, hope and optimism.

“We have shown in the UAE that nothing replaces the power that a vision can have in transforming a society and transforming the future.”

For visitors to the UAE perhaps nowhere will the power of that vision be clearer than in one industry where the country is already a true world-beater – transportation and logistics. ●





EXPO 2020 DUBAI

Interview

VICE PRESIDENT – APPLIED INTELLIGENCE,
INNOVATION AND FUTURE TECHNOLOGY,
EXPO 2020 DUBAI

Iman Alomrani

PRH

How is the importance of innovation to the transformation of the UAE reflected at Expo 2020 Dubai?

IA

By embracing innovation in all its forms, Expo 2020 Dubai will both reflect and contribute to the UAE's ongoing digital transformation into a leading centre of technology-enabled innovation.

My definition of innovation begins with the design of Expo 2020's engaging visitor experience, where technology is used to enhance human interactions. We want to leverage technology to enrich these interactions, and introduce the Expo visitor to the wealth of content and programming available across Expo's connected 'smart site'.

Both the physical and digital aspects of Expo's site are designed to deliver a seamless experience, comprising a smooth and connected series of engagements between visitors and technology. Immersive digital experiences are transforming how we connect with each other, how we absorb information and how we perceive the world around us. Our goal at Expo is to use technology to help people interact with each other and their environment, not just with their devices.

Expo 2020 Dubai is aiming to use technology to mobilise human ingenuity with innovation: ultimately, this strategy will allow us to identify new ways of bringing to life Expo's theme of 'Connecting Minds, Creating the Future'.



PRH

“Expo 2020 Dubai is not waiting until 2020 to showcase the latest in innovation” The National reported in July 2018 referring to the use of 5G technology. What ‘future technologies’ can visitors expect at Expo 2020 Dubai?

IA

The 5G network will drive connectivity across Expo 2020 Dubai’s ‘smart site’, allowing us to offer a digital experience that will underpin one of the most efficient and engaging events in the world.

Early access to Etisalat’s 5G services means Expo 2020 and its stakeholders, including SMEs, can test a variety of next-generation products and services. This technology is about 20 times faster than 4G, with virtually no latency and ultra-low energy requirements. With applications for autonomous driving, networking vehicles, industrial automation and the Internet of Things (IoT), 5G has the potential to give Expo participants the edge in their respective fields.

However, 5G is only one of numerous ways in which we are demonstrating the potential of future technologies. In another example, Expo Live, Expo 2020’s innovation and partnership initiative, supports social entrepreneurs around the world by providing grants, guidance and exposure for solutions that help to improve society, preserve the planet or both.

Our commercial partners are also playing a vital role in delivering an exceptional Expo. We are working closely with them to deliver a cutting-edge digital experience for millions of people to enjoy. For example, Expo 2020 is collaborating with Mastercard to reimagine the future of cashless payments, while Siemens’ MindSphere system will collect environmental and building information from across the site, providing a future data asset to stakeholders, SMEs and educational institutions in the wider Expo ecosystem. With the help of these partners and others including Accenture, Cisco, Etisalat and SAP, we intend to deliver an unforgettable visitor experience through technology.

Add to this the fact that 190 nations have already signalled their intention to participate in Expo 2020, showcasing the latest innovations from every corner of the planet, and Expo 2020 Dubai is set to offer an exciting glimpse of the future on a global scale.

Our goal at Expo is to use technology to help people interact with each other and their environment, not just with their devices





Applied Intelligence.
What forms will it take
at Expo 2020 Dubai and
will these benefit the visitor or the
organisation?



At Expo 2020 Dubai, everything we do is about enhancing the visitor experience. It is worth noting that our 4.38 sqkm site will be home to at least 190 country pavilions, more than 200 food and beverage (F&B) outlets, 60 performances daily and a host of other enticing things to see and do. On average we expect to welcome more than 150,000 visitors per day, and we want each individual to enjoy an exceptional experience.

Our objective is to provide a personalised experience for each visitor by using applied intelligence applications and content to ensure they have a seamless and meaningful time at Expo 2020. Artificial intelligence (AI) is one example of a current technology that can help us deliver a unique personal experience for each Expo visitor. We see data as our biggest ally and technology as a tool to deliver insights to the organisation as well as memorable personal experiences for every visitor.

We realise expectations for Expo 2020 Dubai are high, which is why we are working to ‘wow’ visitors and participants with cutting-edge digital innovation. At the same time an effective ‘smart site’ applies technology to enhance the visitor experience in a frictionless and unobtrusive way. In the end it is all about using technology to transform the visitor’s journey into an opportunity to experience tomorrow’s world today. ●

www.expo2020dubai.com

190

countries have already confirmed their participation in Expo 2020 Dubai

5G

technology will help Expo deliver a seamless visitor experience for millions of people



**EMIRATES**

Interview

CHIEF DIGITAL & INNOVATION OFFICER
ENTERPRISE TRANSFORMATION

Christoph Mueller

PRH

Emirates is widely regarded as the world’s best airline. You’ve won many an award, namely for excellence in quality of service, inflight entertainment and for innovation.

CM

Let’s start with the most important innovation at Emirates which is our business model: to build an airline in the middle of the desert and to connect the whole world via that gravity point is unmatched, which is still driving our business model.

Then of course you have the inflight entertainment which has won awards for 14 consecutive years. We have also developed our own seats – our new first-class seats are really a testimony of really advanced thinking. Who else had ever showered on board a plane, other than the President of the United States, right?

Of course, now technology will enable us to deliver ever more on the entire user experience and we are currently transforming our entire enterprise digitally, and without letting the cat out of the bag, there will be ground-breaking innovations for the benefit of the customer.

PRH

What would you say is the height of innovation and why Emirates is the leader?

CM

That’s difficult to say, but you must wake up every morning and go to work with in mind being consumer focused. What I see are two mega trends. One is the availability of new technologies, robotics, biometrics, machine learning, A.I. and an endless list of tools. But that’s not driving change. A lot of companies make the mistake of acquiring the technology for example blockchain





and say; “what can I do with blockchain?”. So, they have to invent the problem with a solution which is given. That’s the wrong way around. The second mega trend is that you will have completely different customer segmentation going forward. Everyone talks about the Millennials, but the Millennials are truly different. They don’t go to travel agencies or post offices and wouldn’t know what they are nor what to do in such a place. They also have completely different expectations with regards to cognitive elements in their lives. I always use the example of Netflix and Spotify who really try to offer you something that the machine predicts you like. Millennials would be irritated if they had an app that wasn’t learning about their preferences over time. The core of what’s coming is that not only do we have the Millennials coming onstream, but we believe that in 10 years’ time, up to 30% of our consumer base will be very affluent retirees who have a big bucket list and can afford to travel extensively. What they probably avoid thinking about, and that we predict, is that the vast majority will need special assistance, so you need to cater for those needs, in airports and onboard aircrafts. We need to cater for special food requirements and so on and so forth. We can already predict right now what they will need.

there will be ground-breaking innovations for the benefit of the customer





My daughter is studying at the university of Melbourne and sent me an article about the mix of marriages coming out of university, constellations the world has never seen before and that will create a huge amount of global commuters going forward, travelling to visit friends and relatives. So, we have the technology and what we call the new travel tribes who will create a completely new demand pattern. These people want to see different things on the IFE and want to eat different things. The whole world is changing. And we are able to predict that with big data.

We just ran a PoC where we tried to predict what New Yorkers are doing on vacation in Cape Town. Of course, we can inject historical data from 2 years back, from 72 different data sources, google search results, credit card data, all different kinds of data. And then, we predict what they will do in the next six months. And we wait the 6 months and we measure how accurate our predictions were. They were 93.4% accurate. We predicted in which hotels they would stay, in which restaurants they would eat, which experiences they would choose, Botanical Garden, Table Mountain... We were even able to predict where they would buy the gifts for their loved ones. Mobile phones for example, which we don't have access to, have even more information about you. They know which websites you visit, restaurants you go to, and know you better than you know yourself. Because human beings are very often in denial about their habits. With data, we can have better service delivered. Beyond whether you choose an aisle seat or which wine preference you have, but many other details that enable us to curate hyper personalized offers.

PRH

Data vs assets? Emirates has a fabulous fleet, yet service is equally important. Which is more?

CM

This is a transition period. We are operating an asset value of 100 billion USD, approximately 270 planes. We had invested very little in data like most other companies but that is changing over time. If you see modern enterprises, they are largely asset free. For example, Airbnb does not own a single apartment,





they work with other people's assets. They are information traders, so they are really big data companies. Uber – do not own cars, they broker other people's assets. Spotify also does not own any assets, the songs are owned by musicians, and they just distribute. Without Apple, there would be no apps, and they put other people's apps to work. But there's only one app store. You also see it in the hotel industry. Previously, the owner of the brick-and-mortar and the managers of the hotels were one and the same. For 20 years, they have been drifting apart. Now, the brick-and-mortar ownership is in the hands of unknown investors, whereas the Hiltons, Marriotts and Four Seasons are managing these hotels. I really see a tide shift to asset heavy to asset light and from data light to data heavy.

PRH

How is Emirates working on sustainability, on reducing fuel consumption for example?

CM

We are currently working on a concept called Flow management which with the help of artificial intelligence, allows us to predict and influence the arrival time of our aircraft at the outer airspace of the UAE down to the second from 12 hours out and as such we avoid holding patterns. Holding patterns are created in London and elsewhere in the world because aircrafts literally arrive above the airport at the same point in time. If that can be avoided by let's say intervals of 30 seconds, then you don't need that pattern holding. Our estimates are that we can save a substantial amount of fuel in avoiding these holding patterns.

The other thing we have developed is an artificial intelligence engine that enables us to predict meal consumption on board our aircraft. With the help of A.I. we will be able to significantly reduce the amount of catered food. In my recent past with another carrier, we didn't have AI but used statistical methods and we analysed the consumption on board aircrafts flying between Ireland and the UK and it became apparent, not only by time of the day, but by day of the week, week of the month and month of the year, you have completely different consumption patterns with regards to coffee, and beer, and eating patterns and so on. We did this over 4 years and were able to predict the consumption with a probability of 95% which helped us cater more or less accordingly. With Emirates, with the help of A.I. we can do even better. This is really big data as we have to consider 160 different nationalities, cultures and tastes all mixed into an aircraft with different final destinations. Immediately, you end up with 20 million possible combinations. Our big machine is now able to do that, and we have test runs on certain flights where we are able to reduce our catering by 20% which is an enormous amount. ●



14

**the number of consecutive years
Emirates have won awards**

93.4%

**level of accuracy of predictions
of consumer behaviour thanks
to machine learning and data**

100bn

the airline's asset value



SIEMENS

Interview

CEO OF MIDDLE EAST AND UAE, SIEMENS

Dietmar Siersdorfer

PRH

Why have you decided to invest US\$500 million in digitalization in the Middle East? Where is demand for digitalization coming from?

DS

First of all, this is a very vibrant region. We are investing in a region where change is really happening and where they are leapfrogging a lot of technologies. The legacy in this region is different to the traditional markets in Europe, Asia or the US. It seems natural for us to go into these markets and support that vibrancy, and also to educate the youth for example with the grants we make to university students to acquaint them with new digital technologies. Siemens has an overall long-term plan that we have been pursuing for some time, it's not just about investing the US\$500 million in the region. We are amongst the top ten software companies in the world in the industrial field and we have invested close to USD\$10 billion into that environment. We have a software suite which is very unique for the manufacturing and processing sectors which is now used all over the world. Of all the top companies in the Fortune 500, most of them are using software from Siemens.

PRH

Can you give us some examples of how you have implemented MindSphere in the UAE? What benefits will clients of your two Mindsphere Applications Centers see?

DS

So first of all, what is MindSphere? MindSphere is an IoT operating system. It connects the physical devices that you have in the field, of which there are many, it's a physical world, you have power stations, trains, cars, manufacturing or power plant operations, and these are physical assets that are all



generating data. Like your smart watch for example, this is also generating data, which is stored somewhere. The idea of MindSphere is to gather all of this data in an industrial and professional environment and put this data into the cloud, which essentially is the MindSphere. Then MindSphere gives developers, customers and of course Siemens, the ability to develop applications on top of this. So, you use the data that is stored in the MindSphere and you then start to optimise it. Then you can apply all of these technologies like for example artificial intelligence and deep learning to use this data to predict certain things and to carry out predictive maintenance. This is what we are doing with MindSphere. We have started applications now for example with ADNOC to optimise their operations in the oil field exploration.

We are also the infrastructure digitalisation partner for Expo where we are going to be using MindSphere. As a premium partner of Expo 2020 Dubai we are also implementing MindSphere as the IoT, intelligent data platform for them. Secondly, we also looked right from the beginning of our support for Expo to see what we could provide to make it the most connected and most digital Expo in the world.

We have also agreed to set up our global logistics headquarters here which will also be hosted in that building. Why here? Dubai and the UAE are a natural hub for transportation and logistics. We have the big airlines here. I always say that Dubai is the middle of the world. You can fly from Dubai to the US and to New Zealand in one leg and you can talk to the people in the US and in the Eastern hemisphere in the same work day. There is a natural advantage to being in the “middle of the world.” Secondly there is also a lot of ongoing business in transportation here. Even as we look here out of the office you can see the Port of Jebel Ali, which is already big here, but DP World are also operating around 80 maritime terminals all over the world, in the US, in Asia, in Europe, and that makes them a natural partner. And if you go just 15km towards the desert you will find the new biggest airport in the world, which is under construction, the Al Maktoum International airport, which is connected to the sea port, so logistics are everywhere you look. That is what we are looking to participate in and to provide solutions for.

PRH

Specifically with your work with ADNOC can you tell me how you are helping them in the downstream sector?

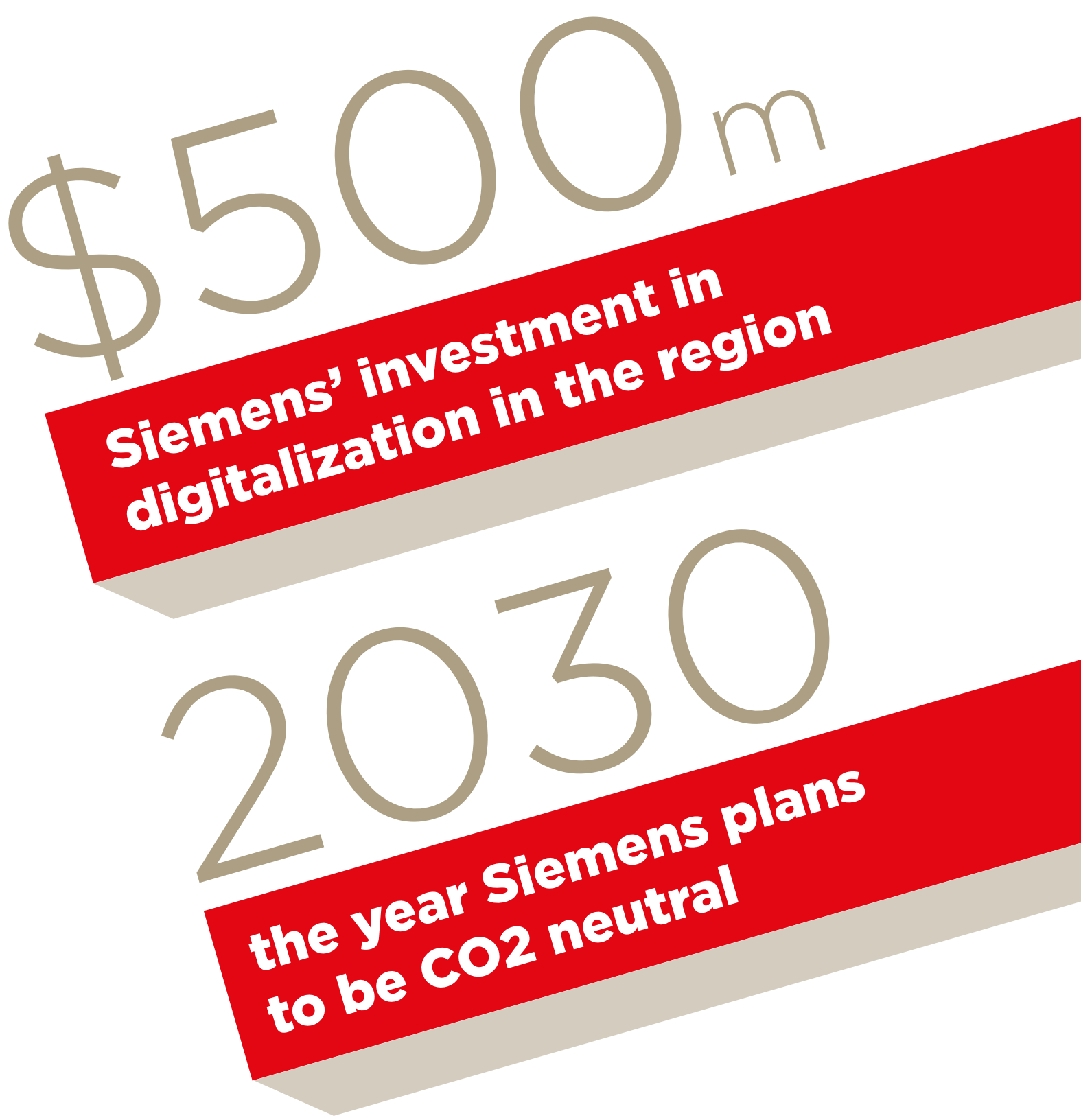
DS

In the downstream, ADNOC recently announced that they are building up Ruwais as the Silicon Valley of the petrochemical industry, which was a very strong statement from Dr. Al Jaber back in May. I like it. Siemens, and

There is a natural
advantage to being in
the “middle of the world



our CEO of course, was there as one of the technology partners and one of the partners in building that infrastructure. Siemens has been a longstanding partner to ADNOC and we are now continuing our efforts to be part of that development in Ruwais. That is something we are looking forward to. It is a USD\$45 billion direct investment just here in the UAE. Siemens is looking forward to providing them with technology. This is a new development, but we have already worked on technology with them in the past, for example the Habshan pipeline which is a very important pipeline to connect the oil fields to the sea. They now have a connection to Fujairah, so they are at the Indian Ocean. We have built the pipeline control system for that and we are also maintaining it. That is a landmark project to connect the refineries and all the downstream operations in Fujairah to the exploration sites.



PRH

How are you supporting the growth of renewable energy in the UAE?
How is your pipeline growing?

DS

For several years now, Siemens has come top of the Dow Jones sustainability index. One of the reasons for this is because we are committed to becoming completely CO2 neutral by 2030. We are taking this very seriously. Our own buildings are all equipped with technology to make that happen. Our master building was the first LEED platinum building in the whole region when we arrived five years ago so that shows how seriously we are taking it. By 2020 we want to cut CO2 emissions by 50% and then become CO2 neutral by 2030. This is ambitious when you have a lot of manufacturing sites, when you have a lot of sites where you produce things as naturally you have to use energy for that. This is what we are aiming for though and we are on track. Of course, this is internal to Siemens, we want to demonstrate with our own company that it is possible so that that is what the customers see. Then we are also working with our customers to help them reduce their energy consumption and thus their CO2 footprint. A prime example is the contract that we have now with Dubai Airports, we have helped them to reduce their energy and to make them more efficient in their operations, which reduces their CO2 footprint dramatically. These are things that we are doing and there are customers like ADNOC using the latest technologies in power generation, using the latest technologies in transmission, to really make it more efficient. This is all helping to achieve these goals. The UAE has a target to be more sustainable. It is one thing is to go for renewables and another t to make the operations you already have more effective and we are targeting both elements – both on the new side but also the infrastructure you are operating already. With Dubai airports for example we are helping reduce their energy bill by 20% annually. ●

<https://www.siemens.com/ae/en/home.html>





DUBAI AIRPORTS

Interview

CEO OF DUBAI AIRPORTS

Paul Griffiths

PRH

Dubai Airports, DXB specifically, is a famously advanced and high-tech airport and voted the number 1 airport in 2014. How is the UAE a hub for innovation in your view?

PG

Necessity is the mother of invention, and that's definitely been the case for us. We are a relatively small in terms of physical size but obviously the largest international airport in the world. Because of our relatively small footprint and the two closely spaced runways, we have had to be very inventive and innovative in order to be able to get the sort of throughput that qualifies us for that number 1 spot as the world's largest international airport. We've had to look at all sorts of techniques across the entire passenger journey from start to finish as well as of course all the operations of the airport and re-examine everything to try and continually find ways of making technology work better, the data flow easier, limit the number of activities associated with aircraft turnaround. There's still a massive amount to do but we are now assuredly focused on technology and process enhancement to create the growth without having the physical space to actually build more terminals and concourses.

I think this reflects a complete change for the aviation business, particularly the management of airports, because traditionally, people in my position have been managers of infrastructure, managers of buildings, managers of terminals and so on. But I don't see that at all. We are the management of the customer supply chain for our airlines. I think the crucial difference is that if you see yourself in a customer service business, which we undoubtedly do see ourselves in, it gives you a completely different view.



So, we are trying to take that different approach, with our stakeholders, to produce product for our customers which is markedly different. And technology has played a massive role in this. We've put all sorts of queue management systems in, we've got heat mapped technology which measures presence, number and rate of movement of customers in particular areas at particular pinch points, so we can highlight not only when something goes wrong, but also predict and pre-empt any queues building up by scheduling the amount of resources necessary to create a smooth experience.

PRH

How do you see the U.A.E. catering for this tech movement or revolution?

PG

The good thing here is that when you talk about a technical solution, people really understand that the government is behind this and they are encouraging innovation in so many sectors across the whole of Dubai, that we are talking to an audience that is seeing more evidence of it every day and the more you improve and digitize the processes that people come into touch with every day the more ready they are to accept the idea of innovation being all around us.

PRH

Let's talk tech. How has A.I. and tech been deployed here?

PG

The biggest development that has really facilitated things here, is the real time passenger flow information that has given us big data that we've been able to analyse and monitor and predict. We can now provide accurate up to the minute arrival and departure profile information showing the projected passenger load at every pinch point throughout the entire process. It's not so much the existence of our data, but the popularization of the data in that the apps which are on all of our smart phones show us clearly what's happening anywhere at any given time.

Smart cameras give you the analytics you need to be able to assess whether the service is up to scratch. The degree of granularity which gives you all of the data at snapshots every single minute. It's done with a combination of movement and height and also there's an infra-red signature as well. We triangulate different data to show different things. It's an incredible tool!

The degree of granularity which gives you all of the data at snapshots every single minute. It's done with a combination of movement and height and also there's an infra-red signature as well.



PRH

What are the general trends you predict in travel and aviation?

PG

There has been an argument raging for a couple of decades over whether hubs will be replaced by direct point-to-point flights across the globe. It's a fascinating development in air travel that airlines are now able to cover at least half of the globe. Once they can fly London to Sydney non-stop, that particular technical challenge is over. That journey is almost upon us.

I still believe that the role of an international hub in terms of driving the connectivity and the connecting opportunities it provides has a major role in the future of air travel. We are very confident that Dubai's pre-eminence as the global hub of choice will not be challenged over time.

The whole shape of the airports of the future will be totally different to what you experience today. I don't think there will be the need to build these vast cathedrals because they are only there for the convenience of the airport operator and the process. If you are able to make the passenger process far more intimate you can actually spread it to existing places. Why can't you do all of your immigration, security and travel eligibility checks at a remote station for example, and then get on a train that takes you directly to your aircraft? It's the many-to-many idea vs the many-to-one. We need to make travel seamless, efficient and intimate journey experience that people will actually look forward to.

PRH

How important are Dubai Airports to making the country be considered a logistics hub?

PG

It is just as much a logistics hub as it is an international airport for passengers. We are regularly number 3 for cargo. Only Korea and Hong Kong slightly surpass us. Air cargo, freight and logistics are very much a part of our strategy.

For both passengers and logistics freight and cargo, being where we are is very, very important. We are within 4 hours flying time of a third of the world's population and within 8 hours flying time of two thirds of the world's population. Dubai is at the cross roads of East and West which has proven to be very strategically important for us to be a hub for both travel and tourism, for transfer traffic over the Dubai hub, both logistics and cargo as well as being attractive logistically, a connecting hub for passengers connecting to South East Asia, Australasia, Africa, and so on. We're very fortunate to be geo-centric as well as being a product of a great vision for building a city and the infrastructure to go with it. ●

<http://www.dubaiairports.ae/flight-status#min-182>

90 million
passengers expected to go through Dubai Airport in 2018

80
airlines serving more than 240 destinations





PHOTO: SEAN DENNIS

SEAFOOD SOUQ

Interview

CO-FOUNDER & CEO

Sean Dennis

AND

CO-FOUNDER & CHAIRMAN

Fahim Sultan Khalid Al Qasimi

PRH

How is Seafood Souq revolutionary here and the world over?

SD

It's a B2B e-commerce platform focused on seafood initially. The idea being that we will connect buyers with sellers. So, we will automate the entire buying process, very much an Alibaba type play. The current distribution model relies on buyers contacting a distributor and then being supplied with certain types of seafood that the distributor knows they can sell. They will import the product and store them for a finite time that they know they will be able to sell to buyers within the market. That inherently means that there's a limitation on choice. The platform that we are creating will allow buyers and sellers to interact directly through our platform. We will act as middleman, we will handle the payment and the delivery of the product. There is no warehouse, or storage of the products so it's effectively 'just in time' ordering. With us, what you buy is what you get. What we are aiming to do, at least in order to break this model and what we see as so important, within this region but in the industry as a whole, fish can be mislabeled and misdated. Seafood is a high value and highly perishable item and that's why we've chosen to focus on seafood for the moment and why it's so important that we do what we do. Jack Ma famously said that seafood and flowers are the hardest things to do in terms of highest value and highly perishable items. "If you focus on those, you can do anything after that".





What we want to do, and it's important to end consumers as well as the actual business, is give visibility on when that product was caught, when it was farmed, the entire cold chain by integrating blockchain which I think is highly applicable to this industry and its supply chain traceability. There is a distinct lack of traceability in the market globally. Which needs to be addressed. Now. Especially in this region as we're quite a discerning customer here and we pay the price for it. We deserve, as do the buyers, or the business buyers providing this product, to have a high-quality product that we can rely upon. So, we are 1. a B2B e-commerce platform, and 2. a supply chain visibility element.

We aim to provide better pricing, more traceability and reliability on the product, better choice because we are not importing and storing products, we don't need to choose certain products that we know we can sell. Products will only come into the country when they are being bought. There's no stockpiling. The freshness is there, and you can order whatever you want.

“Investors say that our board of directors at the seed round looks like a board of directors post Series B”



What I think we’ve done very successfully in our first founder’s round, we’ve brought in incredibly strategic investors who have a vested interest in our success but also can help us achieve our aims. What we want to be doing is creating a massive amount of data for an industry that should be relying upon data but there is relatively little to no data because the distribution industry has been very much cash in hand and difficult to track and follow. This is an important vertical within our business model: the creation of masses amounts of data. We have the capability to create almost a live pricing index for every piece of seafood coming into the region. So: what’s being sold; what’s in the area at any given moment; what the demand is for certain products. It’s going to be entirely transparent.

Getting into the tech industry as a whole, want to take that traceability and transparency into how we run the company as a whole. It’s not just the product, it’s how we operate daily. Which is why Fahim Al Qasimi coming in, will talk to the corporate governance side. We want to set the standard in the region.

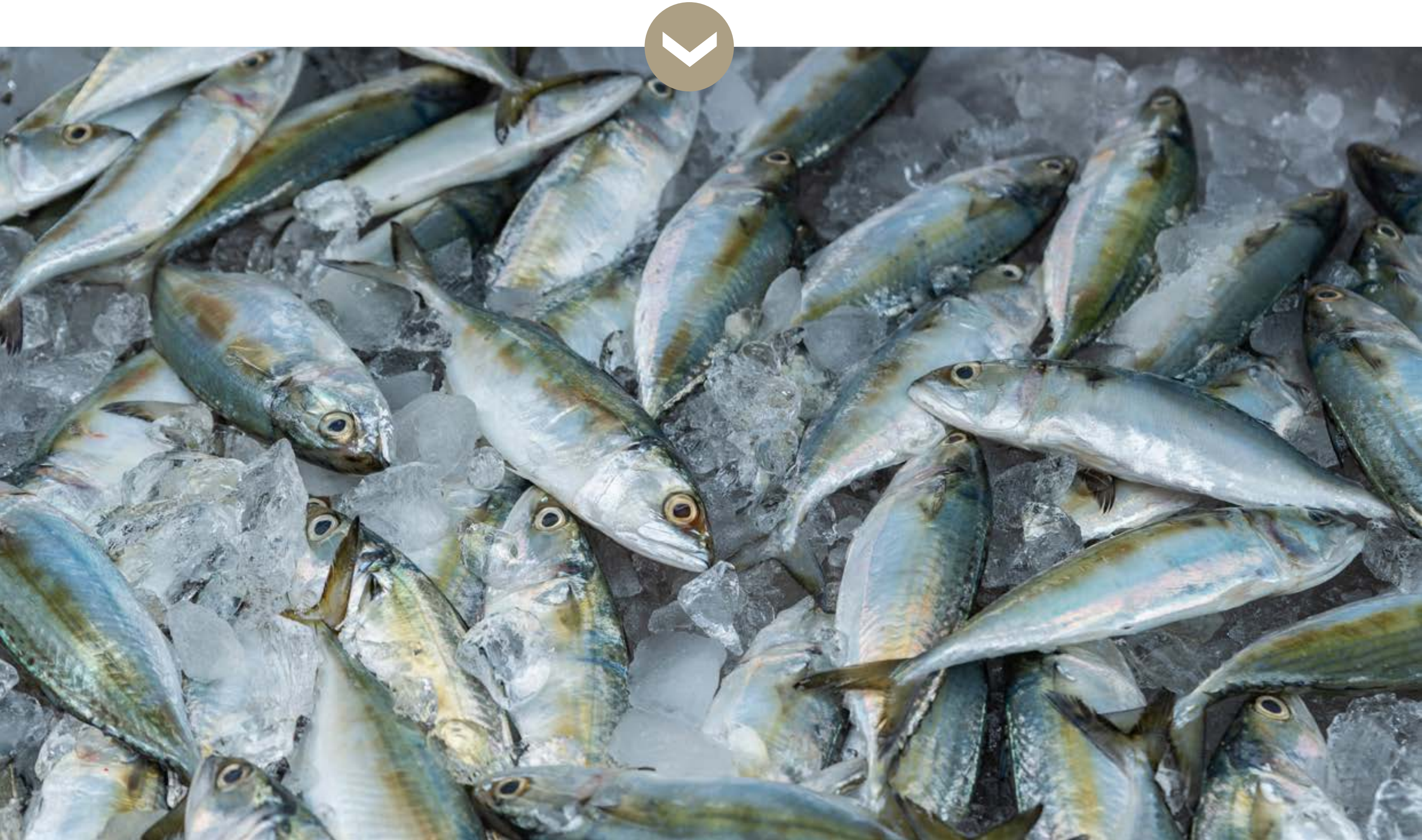
PRH

Why is the UAE the hotbed of innovation of the region, and why is corporate governance at Seafood Souq important to you at such an early stage?

FAQ

While understanding why innovation works in the UAE, we need to highlight some of the key enablers that have allowed innovation to occur here. Fundamentally, the one thing the UAE government has focused on so well is policy. Policy has allowed innovative companies to thrive in what has become over the last few years, a focus area of an emerging market.

AQ&P, the firm that we formed that is a corporate governance advisory and investment firm focused on ESG (Environment Social and Governance) investing looked at Seafood Souq as an opportunity for one fundamental reason. This is not the insert innovative company of the Middle East. This is a company that could only be developed in the UAE. And the reasons are the following: 1. There is no other part of the world through which so much seafood is shipped where the crucial point in the cold chain, or the value chain is as acute as the UAE. We have about 750 million dirhams of fish traded through Dubai. We have key markets from Egypt all the way to the Maldives that receive their fish from key source markets like Boston, like Scotland, like Thailand, through the UAE.





AQ&P being fundamentally a corporate governance advisory, looked at the opportunity to create excellence in corporate governance. We have had investors say that our board of directors at the seed round looks like a board of directors post Series B. And our contention as a firm is that corporate governance is just as important for start-ups and SMEs as it is for the blue chips on the stock market. Developing good governance practices from Day 1 means that you have developed a culture of accountability and a culture of transparency.

Innovation for us is the ability to create shareholder value through new ways of doing things.

At Seafood Souq, being in a part of the world that are global leaders in logistics and has been a gateway for so many goods and services between East and West, North and South, the innovation allows us to create efficiency, transparency and create value within that supply chain and having that well governed from Day one, will prove that Seafood Souq is not just the X innovative company of the Middle East, but will be a benchmark for how venture capital, an innovative idea and a thriving market come together to create value in the global supply chain of seafood.

In AQ&P's humble opinion, corporate governance was founded in 1600 upon the creation of the East India Company where a group of participants on the London docklands put their money towards something that was called The Company. That money was entrusted to the board of Governors that went out and bought a ship. That commissioned ship would be put in the hands of the captain to sail to India to trade. Now drawing that parallel to modern day corporate governance, participants today are called shareholders, the board of governors are the board of directors and the captain is the CEO. We use

that parallel to explain to people that the CEO steers the ship and steering the ship is something that as a board you must allow your CEO to do and guide the strategy and constraints to ensure that they are delivering on the strategy set by the board. The main role of the board of governors or directors is to ensure that your participants or shareholders are compensated for the risk that they took. Fast forward 418 years, participants have become far more sophisticated and while regulation was not the same in 1600 as it is today in 2018, there is still a certain amount of demands that can be set by the participants. My question today as AQ&P to institutional investors is rather than demanding a board seat when you invest in a start-up, set the corporate governance standards that you expect this start-up to abide by. We at AQ&P look far beyond the regulator and/or the potential acquirer to set the corporate governance standards that a company should abide by, and rather look at the eco-system of stakeholders that exist to set the benchmark for good governance. ●

750m

**Estimate of value in AED
of fish traded through Dubai**

1600

**The year AQ&P believes corporate
governance was founded**

<http://seafoodsouq.com>





READY, STEADY, TRADE!

There can be few travelers between Asia, Africa and Europe who have not at some stage changed airplanes in the futuristic cities of Dubai or Abu Dhabi. At the crossroads of three continents, the UAE's bustling ports and airports form the nerve center of today's globalized economy, effortlessly transporting people, packages and goods from one corner of the world to the other.

Across the country, leading transport organizations are now busy investing in digital innovations that will lower costs, increase the efficiency and security of trade and travel, and secure the UAE's place at the very heart of global logistics.





“Technology is completely transforming ports,” says Dr. Sultan Ahmed bin Sulayem, the group chairman and CEO of global ports and logistics giant DP World, which is based in Dubai. “Ports were traditionally places where strong people would earn more because they could carry more cargo. Now we have remote-controlled cranes and in some parts of ports there are no people at all.

“Today, success in ports is all about how innovative you are at finding solutions. We have moved from the age of muscle and brawn to the age of the brain and knowledge.”

At its port and logistics operations in Dubai and in multiple countries, DP World is now introducing innovations such as LogiGate, a smartphone app which allows shippers to book space in trucks and warehouses – like Uber, but for logistics, bin Sulayem says. At the same time, the company is exploring the potential of blockchain for letting cargo owners track their shipments and authenticate shipping and customs information in real time. “Blockchain could enhance security and improve customs procedures,” bin Sulayem says. “It will put the cargo owner in the driving seat.”

When it comes to the world of air transport, the UAE’s big hitters are also on the forefront of digital technology. At Dubai International Airport, the world’s busiest airport for international passenger traffic, airport staff now use heat maps, smart cameras and data analytics to monitor travel numbers and to predict and pre-empt the any build-up of lines and crowds. With an estimated 90 million passengers using the airport this year, it is an innovation that is increasing safety and enhancing quality of service, says Paul Griffiths, CEO of Dubai Airports.

“Since we became the largest international airport in the world, our priority has been to drive for higher and higher levels of quality. Dubai International will soon be the most densely populated infrastructure on the planet, so using technology to simplify processes and improve the quality of service for our passengers is going to be key.”

Meanwhile the airport’s biggest customer, Emirates, is using data analytics and artificial intelligence not only to customize offerings for the airline’s customers but also to increase the sustainability of its operations. “We have developed an AI engine that can predict meal consumption on board, out of some 20 million possible combinations,” explains Christoph Mueller, the airline’s chief digital and innovation officer. “As a result we can minimize food waste and reduce the weight of food and drink, so the aircraft burns less fuel.”

It is not only in the transportation business that environmental concerns are driving innovation. All across the UAE’s energy industry, companies are exploring technologies that could transform the sustainability of both oil and gas production and power generation. ●





DUBAI FDI

Interview

CEO, DUBAI FDI

Fahad AlGergawi

PRH

Dubai's FDI increased by 26% to \$4.84 USD in 2018 according to DubaiFDImonitor.ae, and you mentioned that nearly 36% of FDI came from the US. Can we talk about why the US looks to Dubai as an investment destination in your view and what sectors the US invested in?

FA

Historically, the US has always been one of the top 3 investors in the UAE for the last 15 years. But it probably also has to do with a few other factors such as our activity in the last four years, actively spreading information among US destinations in how US companies can use Dubai as a platform to grow their business in the regions that they focus on, such as the Middle East and Africa. We had over 8 delegations covering almost 18 cities in the US that are global missions that aim to attract investment to Dubai. In my opinion, this may be a factor. At the same time, we have seen Dubai recognized in more areas in the States, beyond its traditional centers of interest of East and West coasts to the South and Midwest. So, the advantage of doing business in Dubai is being broadcast throughout the US which has brought a better understanding of how US companies can do more business in the region through Dubai.

Of course, aviation would come up top in terms of the sectors they are investing in given that Dubai is the third largest aviation hub in the world. Logistics, finance, and technology across the board as well. We are seeing new clean technologies as a big draw to the UAE, and many blockchain-related technologies. We are also seeing interest from the film industry. Multiple sectors are seeing growth.



PRH

Private companies spoke highly of policy helping the tech movement currently underway with us. Can you tell us about what specific policies have helped and about Dubai FDI's role?

FA

Overall Dubai FDI is a facilitator and our role is to bridge the gap between information and to make it easier for people to absorb the information and better translate it to business. The policies and procedures were implemented a long time ago here in Dubai as a ready city with incentives to attract investment. At that time, we didn't yet have a federal law for investment which was passed in the last two or three weeks, a much longer awaited law. We see it as a start, not as the ultimate goal. Our ultimate goal is to continue developing our regulations and laws and overall investment environment to be attractive.

This year has significance when we look at what procedures have been put in place to attract the next wave of investment. We talk about talent, attracting and retaining talent. We talk about senior investors, senior citizens, that we want to allow to stay in the country. Also 100% ownership in certain areas, that the government supports and that has an overall economic impact. Also, there are a few incentives that the government is pushing to expedite processes. One I would like to mention is blockchain strategy for Dubai to be implemented by 2020. We talk about time with investors and ease of doing business. Dubai has to have all government transactions to be on blockchain by 2020, or at least the bulk of it.

Part of the strategy is to go paperless by 2020. As Dubai FDI, today my quota is only 300 pages to be used by the end of the year, for the entire agency! So, I am trying to be very careful in how I use the paper!

There's a will, there's a push and there's a deadline. Thanks to Dubai smart government already showing progress, ensuring everyone is aligned and giving us quotas and deadlines, which is how progress happens. I also believe regulations are there to be developed. The federal government and the Dubai government work closely together for the readiness of the city for the investor to find it attractive at all times.

Investors are changing their behaviour. They want to be light in their deployment, but heavy in impact



PRH

How does FDI compare in the innovation realm to FDI in ‘traditional sectors’?

FA

I think these are very interesting and challenging times. Interesting as we see technology as being the anchor to everything. Interesting as we see results. When we talk about science, technology and innovation as a government strategy, but then we saw it translate into results. In the last two years, over 50% of investment that we received had a medium to high technology component. On our part, as an investment attraction agency, we aim to scale it higher, perhaps even higher than the objectives the government have given us. That will also help transform the country to give us the future we all want, and we have always discussed. This is very important.

The challenges are regarding the new type of investment. It is changing. Investors are changing their behavior; they want to be light in their deployment but heavy in impact. How we can make that heavy impact on the economy is by enabling the economy to be future-ready for these industries of the future, industry 4.0, smart city, clean technologies, 3D printing, robotics, e-payments... all these need special cities that enable the businesses. We know they will not deploy all over the world, they will pick and choose. We are very happy to see Dubai in the top 20 smart cities of the world. And we are happy to engage in this further as we know although it is challenging, it’s interesting and there’s a big learning curve for us all, in every aspect of our lives, from our homes to our work and our cities. We embrace the challenge. We decided to be among the top destinations for new technologies to be the first to be part of this change and be enablers as this also brings us advantages for the future as we will be in a better position as it evolves and changes. It is only the beginning. This is why the federal and local government push us forward as we all see the value and are happy to work towards a common goal.

50%

FDI with a medium to high technology component

36%

total FDI in 2018 came from the US**PRH**

How is Dubai FDI helping accelerate Dubai’s Smart City vision and how is it attracting investment?

FA

I believe this is one of the best initiatives the government started in the last few years. And this is the foundation enabler for our transformation for the future. We need to have champions who will bring us there. They are the first cities for the United Nations smart city index.

There are a few things we are working on that we can only share in 2 years or so, that will change the way we do business and will create a great deal of opportunities that will benefit not only the UAE and Dubai, but benefit the people of the entire region. ●

<http://www.dubaifdi.gov.ae/English/Pages/default.aspx>





Interview

CEO, CLEVELAND CLINIC ABU DHABI

Dr. Rakesh Suri

PRH

What would you say is the state of innovation in the UAE?

RS

If you think about how Sheikh Zayed and then his family members thereafter have built the infrastructure of Abu Dhabi and the UAE they have invested in roads, accommodations, education, culture in a remarkable way and healthcare really was the lacking element. It was his words when he was in Cleveland, Ohio, receiving his kidney transplant, spoken to his son, Sheikh Mohammed that really set the path towards creating a future healthcare system for the UAE that would take care of the greatest investment that the UAE has, its people.

If you think about that as the premise, then everything else flows logically from there. You take the cultural brand of a healthcare organisation like ourselves, that puts patients first, that is one of the top researchers in the world in its field and that trains the next generation of leaders, and you can see what a perfect match it is between Cleveland Clinic and a nation that is investing in its people.

There is no more fitting tribute to that than last week when we did six transplants in six days here in Abu Dhabi. Never before has that been done in an academic medical organisation that is so new, and certainly, a greenfield American academic organisation has never before evolved in this way. What an incredible way to honor the legacy of a visionary ruler in the year of Zayed.

PRH

Do you see much cross pollination happening between the healthcare and other industries in the UAE?



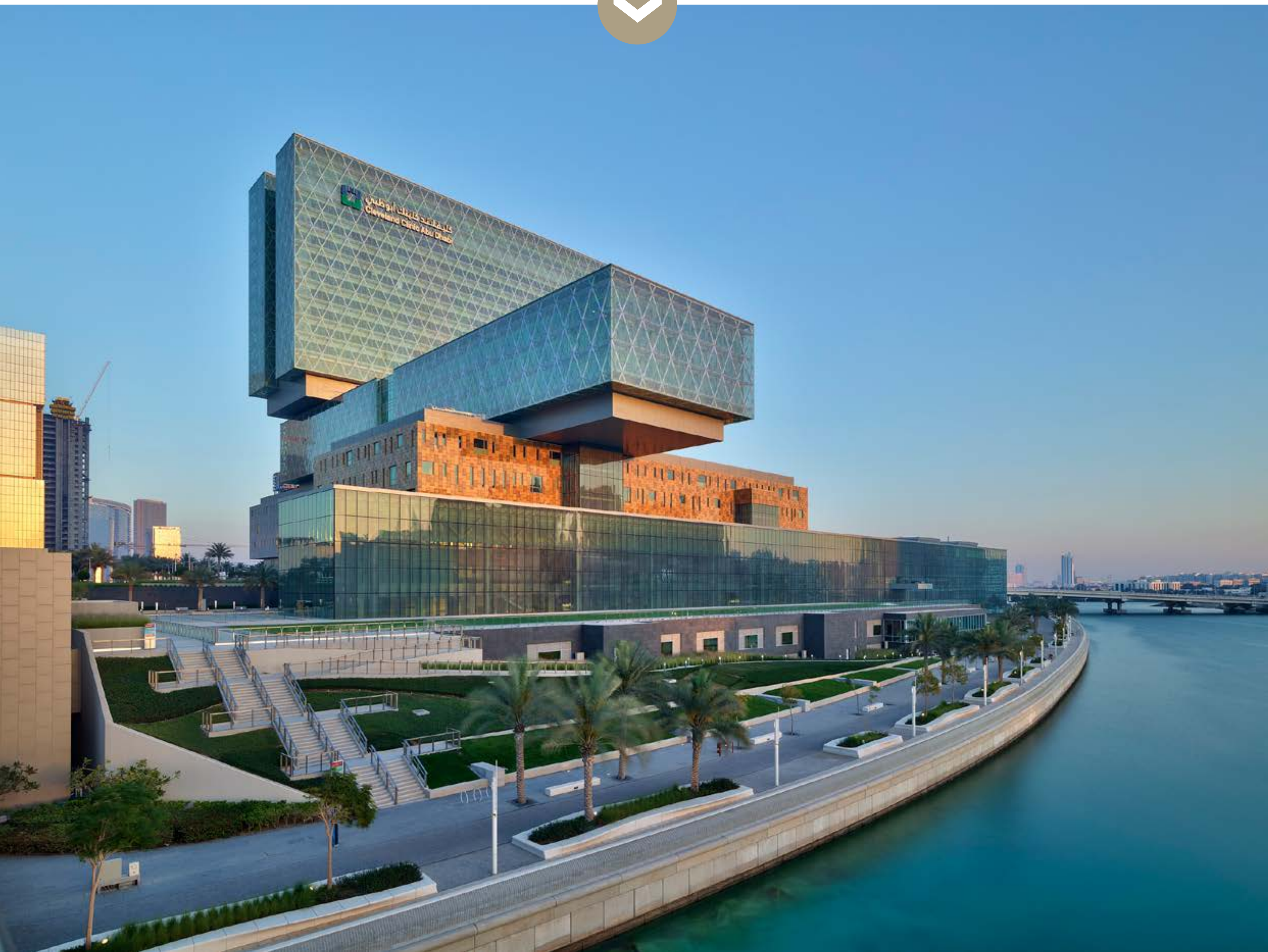
RS

Absolutely. Many people don't know that this happens routinely as part of our DNA. One of our core values at the Cleveland Clinic is innovation, so starting from Dr. Floyd "Fred" Loop, our first heart surgeon CEO to Dr. Toby Cosgrove, another heart surgeon CEO, to our current CEO Dr. Tomislav Mihaljevic, also a heart surgeon, to me, fortunate enough to be following in Tom's shoes here as the CEO in Abu Dhabi.

What is unique to our DNA as heart surgeons, is that heart surgery has typically been a pioneering field, meaning you go into a cavity of the body that is sacred and really there is no road map because every heart is different, and you are asked to bring a combination of art and science together.

Let me give you an example of what I do in mitral valve repair. The mitral valve is one of the most high-pressure valves in the entire body, meaning it withstands supra-systemic pressures before the blood is ejected to the whole body, the brain, the foot, the kidney etc. all from this one chamber in the left ventricle. When that valve fails in roughly 3-5% of people, anybody with a heart murmur, then what traditionally has happened is that people need to have the valve cut out and replaced. The innovation that our former CEO Dr. Toby Cosgrove brought to medicine was repairing the valve, so taking your own body's tissue, using a needle and thread and actually rebuilding it into something that actually works.

Innovation and cross pollination is the core of what we do. Preserving valves is an example of that and that is what I have based my career on. The second part is that when I took that as a part of my career progression, I thought that there must be a less invasive way to do it. The robot, the Da Vinci Robot, appeared to me to be one of the best ways to do it. People were forced to have their chest bones split for decades, and it was my passion as a heart surgeon to create a way where we could do this using a robot without opening the chest.



My team went around the world to different groups that were working on this and we put together insights from engineering, from construction, from artificial materials, from design, from material engineering to create new operations in the heart using the robot.

That was the second wave of development of my specialty, mitral valve repair. The third wave, I'm very excited to say we are developing right here in Abu Dhabi and that is to do the exact same operation that a decade ago you would have had your chest split for, and to move even past robotics which leaves punctures only the size of a finger in the right chest, to now in Abu Dhabi where we have been able to do the operation, for one of the first times on the planet, via the groin with a needle hole smaller than a pencil point.

It is absolutely mind blowing because the journey of innovation which started in the US is now proceeding right here in the UAE. We are again re-importing these learnings back to the US, back to the UK, Europe and abroad. Not only does the progress continue on a macro scale with the healthcare system but it is also progressing right here in my own profession, I'm privileged to be a part of that.

It also is occurring in other specialities; digestive diseases, which is the bowel; the brain, we are doing innovative neurological procedures here; transplantation, I just shared some of the remarkable things including splitting half of a healthy human liver in a living related donor and donating it to a relative who is in dire need of a liver transplant, one of the most high risk things on the planet, we did three here last week, back home we just do one a week; oncology, we are building a seven floor oncology tower that will bring all specialities together to deliver the comprehensive care necessary, again in a non-incentivized manner, for cancer patients in a way that has never been done anywhere on the globe, working with our colleagues at the Taussig Cancer Center.

What are your targets for UAE's global ranking in healthcare?

PRH

RS

What's phenomenal is that when you deliver care in a way that improves lives that meets or exceeds global benchmarks and you treat people well as human beings, everything speaks for itself. Not only do the patients start coming but leaders start coming and foreign dignitaries start coming and then you hit a tipping point where it is just a self-propagating paradigm.

We not only have the types of surgery necessary to cure major cancers, whether it is in the chest, the belly or the brain, the big three areas where cancers happen,

we fully expect Cleveland Clinic Abu Dhabi will be partnering with the Minister of AI in the UAE to come up with completely novel, innovative and patentable solutions for healthcare





we have the surgeons and the teams already skilled at dealing with these things, so people come to us for the surgeries. Importantly we also have the drugs, the chemotherapeutic agents that are necessary to prepare people for the surgery and to care for them after the surgery.

What we are working quickly to build now is our radiation facilities so that we can continue the full spectrum of therapy and treat people on campus that we were already performing the majority of the therapy for to offer so called end-to-end therapy. When people get this life changing diagnosis not only do they come to the busiest centre, but they truly want to be cared for end-to-end by a team that knows them, knows their family and are there for them as human beings, and that is why it is so critically important that we build this building and welcome people into that new cancer centre as quickly as possible.

29

Number of transplant operations

226

Research papers published in 2017 and 2018

PRH

How do you see new technologies such as AI help advance healthcare?

RS

We have always had fruitful collaborations across government which is again another driver, another variable that predicates or explains why this mission has been so successful. I am fully expecting that we will have great relationships and direction from the minister of AI, in fact we have already reached out via our teams.

Here is how we see AI, people traditionally see AI as some computer box that needs to be trained in order to deliver something of value. The more contemporary view of AI is actually different, that is the following: you feed the predicate variables into AI but you don't tell it what it should come up with. When you do that, something remarkable happens. The latest versions of AI in gaming, space and electronics have actually come up with completely different solutions than human beings had ever before imagined. Therefore, we don't see AI as a thing we should be defensive against or wary of, it is actually quite the opposite.

If we feed in the predicate variables of what the drivers of health and disease are, we are fully expecting that we at Cleveland Clinic Abu Dhabi will be partnering with the minister of AI in the UAE to come up with completely novel, innovative, patentable solutions for healthcare that have never before been invented, just like is occurring in the worlds of gaming, electronics and in infrastructure where AI has been deployed widely.

So, we are very excited, we welcome all innovators into our space and into our hospital we have not only clinical care but also research as a part of our core mission and education, so this is completely aligned with our core vision and values and we would like to be a global leader in AI in healthcare. ●

<https://www.clevelandclinicabudhabi.ae/en/pages/default.aspx>





MADAR FARMS

Interview

CEO OF MADAR FARMS

Abdulaziz Almulla

PRH

Why did you choose the UAE to set up the indoor farming business?

AA

Being from Kuwait, a lot of people question why I'm here and not Kuwait, especially since the main driver for us is a social driver. If you can solve the problem in one location, you can immediately deploy it elsewhere. For this first stage for us as a company, we are looking at execution capability. How can we execute successfully? And how can we replicate that execution? The UAE has become a centre of excellence for starting something in a new field. We are dealing with new regulatory challenges, new logistical challenges, we're dealing with new operational challenges, things that we have never dealt with before... no-one else has. For that reason, we needed somewhere that had a very strong focus on innovation and public sector support for that innovation. We see the UAE as our springboard and our centre of excellence. Beyond solving the problem for the UAE, we are trying to solve the issue for the region. The UAE supports a change in mindset having come very far in a very short time themselves. If the end goal helps the country, they are open to new ventures.

The two biggest challenges are education awareness and regulatory. On education awareness, we need scale and so the government has been pivotal and needs to continue to do so to educate 8 million people in one go. On the regulatory side, we've had to deal with a lot of issues, for the first time. Very important to note, we are not just a technology company. We are also dealing with real food which brings about a whole other minefield in the regulatory aspect.





PRH

So, it's really 'where there's a will, there's a way' here?

AA

Absolutely. I feel it makes a difference if your project is deemed worthwhile which has strongly differentiated us. When they hear about how much work and investment this has been, and how much this helps towards community development, we find a world of support here.

What we are really looking for is strategic partners who can help us get the message out and help us communicate the brand properly and help us educate the market. Whenever someone approaches us wanting to partner with us. If we can get to the end goal in a more efficient way, how do we do it? That's the only condition or restriction we have. We are driven and have a very clear goal as to what we want to achieve.

The UAE supports a change in mindset having come very far in a very short time themselves.



PRH

Speaking of, could you expand on that?

AA

For us, the very long-term goal is to empower through sustainable agricultural technologies a shift away and create foodself-sustainabilityandsustainable production locally. Now how we do that, I think will differ over the years. Initially, we've spent the last two years or so focusing first on understanding the market and deploying a few solutionsandtestingallthepainpoints. So, for example with our container farm, we managed to test everything from importation of equipment, importation of consumables, getting theequipmenttomarket, working with the utility providers, working with the regulatory clarifiers, getting it certified, selling it etc. All of these things in a very small scale. So, what we are building right now in Abu Dhabi is a much, much larger scale indoor farm. I think that for us to have tested all of these things and then prove it out on a larger scale operation is key. Because it's a new industry, not everybody has the same risk tolerance or the same long-term vision that we do. On the longer term, after we prove out that concept, our goal is to do both product and geographical expansion.

We hope to act as an empowerer of change which might mean supporting households, providing farming as a service to conglomerates or corporates. What we are looking to do is to reduce the number of imports and shift our dependence on water down. 80% of water is used for agricultural irrigation. Less than 1% of land in the Gulf is actually arable or crop land. The math doesn't add up. Our food quality isn't up to scratch and when the quality is high, it is expensive and out of reach for most people. Should there be any sort of trade disruption or supply disruption we will be in a very tough situation. We are trying to increase local production and reduce the dependence on natural resources. We are trying to increase the local skill transfer into sustainable agriculture and we are trying to do it in a way that becomes accessible to more people.

Focusing on education is important - we need to make the growing aspect as accessible as possible if we want to widen adoptability. We are rolling out a series of educational programmes where we build small farms with school children. We build a connection between the children and food. And this teaches them and builds that connection that none of us had growing up. ●

www.madarfarms.co

80%

water that is used for agricultural irrigation

less than 1%

land in the Gulf that is arable



KESTREL GLOBAL

Interview

MANAGING DIRECTOR, KESTREL GLOBAL

Tom Hudson

PRH

Please could you tell us what the company KESTREL is about and why the UAE?

TH

2015 was the “Year of Innovation” in the UAE and all government entities at that stage, genuinely invested in their people and tried to foster a culture of innovation. I was working at DP World at the time, and not only was a Chief Innovation Officer appointed, but we were all offered the chance to go on a bespoke Harvard innovation course which was great because it didn’t matter which department of DP World you worked for, a number of people in different departments got a chance to do it. As I was a lawyer, I was then encouraged to be innovative and try to think of different solutions rather than what I had been taught at law school.

I could see this wave of innovation and investment happening with all the UAE entities, and especially because Dubai had won the Expo 2020 bid, there would be an amazing opportunity to matchmake the UAE’s ambition with the international companies and thinkers that are trying to change the world. I tried to see where I could fit into this, and being a lawyer who structured transactions and deals, I thought that my place in this new eco-system being formed would be to work with the international companies and try and provide a turnkey solution to unlock all the UAE opportunities, especially around GovTech.

Having just won the Expo2020 bid, I wrote a white paper with the title ‘Dubai, the Exponential City for the Exponential Age’. This was the pitch to international companies as to why they should be setting up here, especially in advance of EXPO 2020. Although the UAE as a market in itself only has 10 million inhabitants, it almost provides a microcosm for what expansion might look like in larger countries



and yet small enough with the right leadership structure to be able to implement ideas and change regulations quickly.

So, the companies that I like to work with are ones that genuinely have something innovative to offer that already have a product in their country and we try to bring it here and give it a Dubai twist and then usually find a government entity for them to work with, that can sponsor a pilot project, find customers for them, prepare a launch and help them set up a presence here and deal with the corporate side. Ultimately, people find this a great place for investment as well, although I always say people should never look at investment first, they should make sure their product is a success here and the investment follows.

After the idea for the white paper was approved in 2015, we established in 2016 and my first meeting was in Palo Alto with Tesla which then set the standard for the types of companies that we want to work with that plug into EXPO 2020's themes of Mobility, Sustainability and Opportunity. I then go and meet companies at events like Founders Forum or the recent GovTech Summit in Paris and talk to them about the opportunities in Dubai and the region. I speak regularly with the embassies and the likes of 10 Downing Street to see which international GovTech initiatives we can set up here.

PRH

What are the main advantages of setting up in Dubai for you?

TH

I usually say there are 5 main advantages. One is the vision of the leadership to build the future. This comes directly from the Ruler himself, but also through the Ministry of the Future and Dubai Future Foundation. This cultivates a “can do” environment where regulation and licensing help rather than hinders innovation. Secondly, the actual location of Dubai as the gateway between East and West and the regional hub, with 2/3 of the World's population within an 8 hour flight. Third, the corporate and tax structure: you can have 100% Foreign Ownership and no corporation and income tax. Fourth, access to investment, be it from big entities investing or family offices. Finally, the community and ecosystem, whether it's in the freezones which are industry specific and provide the perfect communities for cross-pollination of ideas, or even just the family life, where my three young daughters (and wife) love the beach!



Kestrel helps execute the vision of the leadership, structuring the deals to make that vision a reality



H.H.Sheikh Hamdan bin Mohammed bin Rashid al Maktoum, Crown Prince of Dubai, Chairman of the Dubai Future Foundation, witnesses Winnow sign an agreement with Dubai Municipality



How would you say Dubai ranks in ease of doing business?

PRH

TH I think there are some challenges in setting up here for international companies, that are becoming easier, but there’s certainly a way of doing business here, that when you know how to approach, is easy. Wherever you are from in the world, you’re adapting to a new country and set of rules that are both legal and cultural. Luckily, the establishment of freezones like the Dubai International Financial Centre is a prime example of innovation because it showed the flexibility of the country to provide a legal jurisdiction for international companies within the country that had a legal system they were familiar with. To set up an area here which has its own laws, based on English and international law, and with its own court system, is amazing. Those laws were essentially crowd-sourced, with input from all the best lawyers and law firms from around the world who wanted to set up here and have a say in the regulation that would govern business here.

Dubai was able to have a genuine international financial centre in the space of 10 years by implementing this, and was the reason that I first moved to Dubai in 2006 with Linklaters when we set the office up here. Dubai caught up with other financial centres and are now looking to leapfrog, and one of the ways in which they are doing this is, for example, with the Courts Of the Future Forum. The idea now is to get a group of futurists, academics, professionals to come together, launched at the World Economic Forum: Future Councils Dubai 2017, and we try to figure out what the future legal jurisdictions will look like. We are looking at things like the courts of the future being totally virtual. One of the things I am working on, is to have an A.I. for dispute resolution, so an “A.I. judge” that would assist a human judge.



PRH

Who's behind these sorts of initiatives? Is it a government agency?

TH

The initiative is by DIFC Courts but in partnership with the DubaiFutureFoundation, which was launched to play a pivotal role in shaping the future of Dubai along side the launch of Dubai Future Agenda as a roadmap for the Foundation to shape the future of various strategic sectors. Dubai Future Foundation encourages everyone in both the private and public sectors to constantly come up with ideas about the future. I think that appointing a Minister of the Future was a brilliant move, because it's got everyone thinking and pulling in the same direction as we are all excited about what the future holds and can see a clear vision for it.

For example, creating Area 2071, which is an innovation space right in the heart of government, where everyone gets to brainstorm what they think the U.A.E. is going to look like in the centenary of the country which will be in 2071.

Quite a lot of countries are stuck in near-termism given election cycles, Brexit etc. Whereas here I think it's refreshing that we have the chance to think of 2071 now and plan for the long-term.

PRH

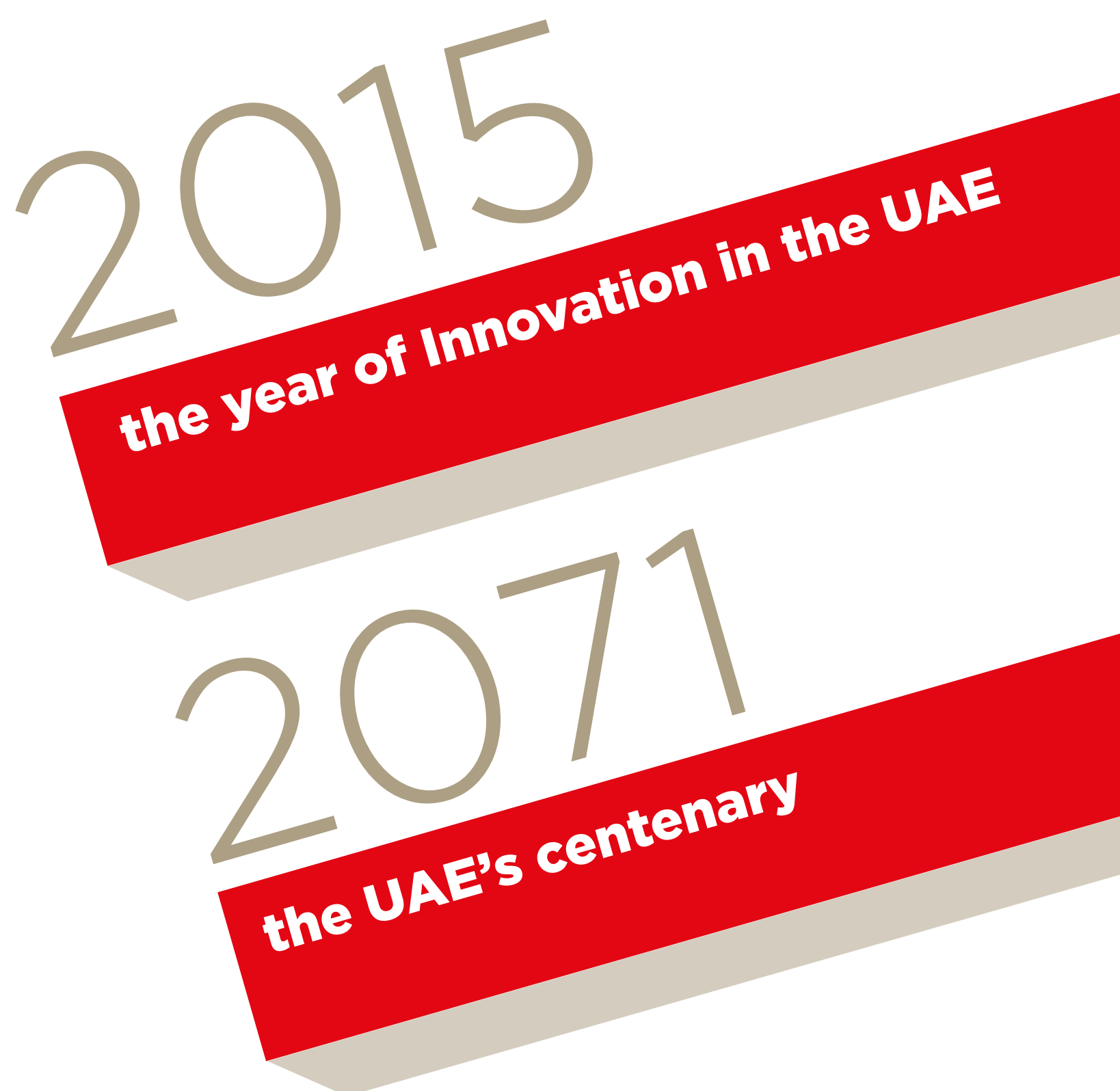
So, what's missing for the UAE to top the list of the world's most innovative countries?

TH

I think Silicon Valley has set a high bar, and I believe there's certainly the ambition for the U.A.E. to become the Silicon Valley of the region, with so much talent and resource on our doorstep in India, Pakistan and Africa. I think it starts within the schools and the universities and actually there are some brilliant universities here attracting some of the best.

The American University of Sharjah Enterprises is just launching the Sharjah Research, Technology and Innovation Park. There are already 40,000 university students in Sharjah and they are creating an area where companies can do their R&D and use the students to help their studies. One of Kestrel's clients is a company called Oxford Flow that is a spin out from Oxford University. We have structured a deal where they implemented their technology in Sharjah with the blessing of the Ruler of Sharjah with the Sharjah Electricity and Water Authority and now there will be a research and development project with the university to try and foster ongoing innovation. So I believe that it begins with education and the students here and attracting the best, matching them with the companies that are all set for innovative ideas and there is funding for it. I think the elements are here. We already have two local unicorns in the form of Careem and Souq.com and I genuinely think there'll be more. ●

<https://www.kestrelglobal.ae/>





Interview

HEAD OF THE GREENHOUSE AND CHIEF
TRANSFORMATION OFFICER , CHALHOUB GROUP

Dina Sidani and Rania Masri

PRH

Patrick Chalhoub was just saying that the Greenhouse is more than just a space, it is a physical interpretation of the transformation of the company itself from a corporate culture to...

DS

... a more innovative and entrepreneurial culture where people make decisions quickly, they are more agile, they have a lot of energy and they are more daring and willing to take risks and experiment. Patrick also mentioned at the launch of the Greenhouse that at Chalhoub Group, we consider startups our allies and want to offer them a working space, mentorship and a ground to scale up their ideas. The Greenhouse is a unique opportunity for tech companies and startups from all over the world to implement and test their solutions with the leading retailer of luxury in the Middle East. And finally he said the Greenhouse is an initiative to accelerate the right solutions in building a future proof Group.

The Greenhouse space is officially open now in Dubai Design District. A workspace for start-ups of the start-ups of the accelerator program and the internal incubator “Ibtikar”. The accelerator program started September 24th, so the start-ups have been with us for a month and a half. So that is our first program. Our second program which is super exciting is the Ibtikar program, which means innovation in Arabic. The Ibtikar program is an entrepreneurship project, so we get ideas from all our teams at Chalhoub. They go through a rigorous selection process, if they are selected, we give them funding and we give them time off their roles dedicated to developing those ideas into businesses. They go through a metred funding process so every few months we do a go-no-go with a selection committee and decide whether they have shown traction. If they have, we give them more time and more funding to develop their businesses and more team members.



The Greenhouse for Chalhoub firstly accelerates innovative solutions to our problems and secondly it builds the next generation of retail business models through Ibtikar, and thirdly, and this is really important, it means we always have our finger on the pulse of what innovation trends are out there. Finally the fourth, and I think key objective is this cultural osmosis where we want to create as many touch points as possible between the entrepreneurial ecosystem and Chalhoub, from this accelerated Ibtikar process to all the sessions we are going to hold here.

PRH

Let's talk about the birth of The Greenhouse and why Chalhoub felt the need to undergo this transformation?

RM

When we started discussing the transformation for the group it came at a time when we saw the customer evolving and how she started changing with the digital transformation that has come about in society in general. In the past five years we have seen a consumer that is very connected online, the mobile penetration in this region is the highest in the world, there are at least two mobile phones per customer, Saudi Arabia is the number one user of Instagram, Facebook etc. It is a very highly social customer who is already starting to take more and more influence on decision making and buying from social media. We are already culture in the region that is very influenced by other people so there is the whole "clan mentality", we like recommendations, we like to see what other people are wearing etc. So that was always there in the offline world, so when the online world came about it happened so quickly. We were traditional retailers that excel in the art of brick and mortar retail, we have over 650 stores across 14 different countries, we have 12000 employees so therefore we connect with people offline. When the online world came about it started as a marketing tool, but then it developed into actually creating commerce with online retailers like Net-a-Porter, Farfetch etc. It wasn't just the influence part it was also extending our products directly to the consumer. The transformation is about shifting from a traditional retailer to a hybrid retailer that has the customer at the heart. So wherever she is, at any touchpoint, we need to be. This meant for us a re-engineering of the way that we do things from a tools perspective, but mostly from a people and culture and skillset perspective. This should not be something that is forward facing to the customer, she should feel it not see it, but it is really creating the foundation in order to be closer to her. So that is how the transformation started. It is very common in many retailers that are traditional retailers, but we really understood it and we acted on it very quickly and we started this with a team, a movement and a mission called SHIFT, we branded this transformation within the Chalhoub group under SHIFT. Communication is very important to get everybody brought in with this mission and from within SHIFT one of the initiatives is the Greenhouse. SHIFT is a 900 days movement. This started in January this year. The idea of the 900 days is that we are shifting from a three-year plan to 900 days

mobile penetration in the region is the highest in the world, Saudi Arabia is the number 1 user of Instagram





divided into 90 days sprints, that is how we can achieve ability and speed despite being a large organisation. The analogy is that we are the mother ship that is so heavy, so we need to release speedboats in order to achieve our aims and these speedboats would be working on 90 days sprints.

PRH What do you predict might be future trends in the industry?

RM The north star we are working towards is being the store of the future. What does the store of the future look like? That is where the future trends are. Yes there is a fully seamless experience for the consumer, we use technology such as AI in order to predict more, to be able to offer a better service, but the future is still very much a brick and mortar offline store with digital elements to it including E-commerce and services online, pick-up in store, so the whole journey that I am sure you are familiar with already.

PRH Dubai has of course for a long time been famous for its physical shopping spaces. How does the UAE fit into this vision of retail in the future?

RM If you look at Dubai and you look at the retail landscape, and I have looked at retail all over the world, you will see that we have started some concepts that were genuinely ground breaking, like Level Shoes in Dubai Mall that caught the attention of many international fashion capitals wanting us to export it there. It has the beginnings of what we call the store of the future, which is a retail space that is communal that brings people and communities together, that is a vibrant space that connects people with products but won't limit the service to just the store. This is what we are trying to do, to extend this to wherever you are at any place. The same has happened with shopping malls here. If you look at our shopping malls and compare them to shopping malls anywhere in the world, Asia is already more advanced than the rest of the world in this, but we aren't seeing the death of the shopping mall. Some of the Chinese shopping malls that were being proposed at the World Retail Congress are out of this world. Like you said earlier, unlike G3, you don't have that much street life, so the shopping malls are our districts, and they are becoming real districts where we are thinking about the F&B element to it, we are thinking about all the service elements beyond retail. So, I think that all falls together: the store of the future, the mall of the future, the district of the future. I know that shopping malls are also thinking about the future in these terms.

DS That also brings us back to our conversation about AI and what AI is going to do for retail. These are the things that AI can't do, this community experience element. These are the things that will bring people to the store as opposed to letting AI do everything for them. ●





Shams Solar Power Station is a concentrating solar power station near Madinat Zayed, Abu Dhabi, the United Arab Emirates

BACK TO THE FUTURE

To the untrained eye, life in the energy industry of the world’s seventh-largest producer of petroleum goes on much the same as it did before the launch of Vision 2021. With 6% of global oil reserves located here, nearly all of the world’s energy majors have a presence in the UAE, pumping low-cost oil and gas from the giant onshore and offshore fields of Abu Dhabi for consumption in Asia and around the world.

Look a little closer however, and it soon becomes clear that behind the scenes a quiet revolution is underway. From oil exploration and production in the upstream, to refineries and petrochemical plants in the downstream and cutting-edge solar parks and hydrogen projects in the power sector, digital innovations and new energy technologies are changing the face of what remains the UAE’s largest single industry.

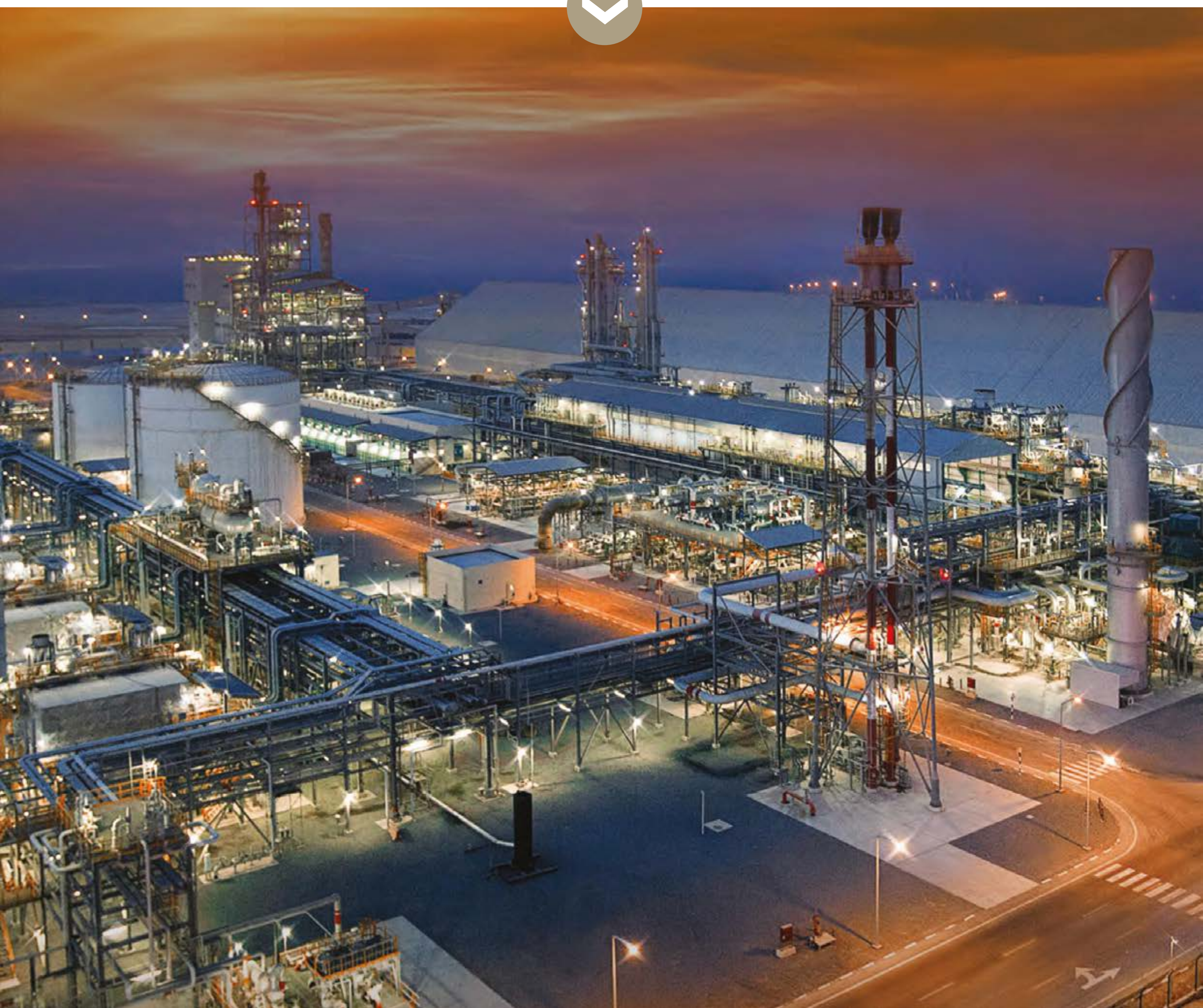
In traditional oil and gas fields, ‘traditional’ is a word they would equally like to reform. In one of its first moves in this direction, ADNOC has set up a digital command center which enables the company to use AI to analyze vast volumes of real-time data from across its operations and then act on that information. “We want to embrace disruption, expand our partnerships and embed innovation into every aspect of our business,” Sultan Al Jaber says. “Throughout the history of our industry, just when we think we have reached the limit of what we can achieve, a new breakthrough propels us forward.”



“We are putting ourselves back into the driving seat of innovation and bringing the oil and gas industry into the Fourth Industrial Age,” says Sultan Ahmed Al Jaber, UAE minister of state and group CEO of ADNOC, the country’s national oil company. “Our ambition is to extend technology’s power across our entire value chain from drilling platforms to trading platforms.”

One of ADNOC’s closest technology partners is the German multinational Siemens, which is using its Internet of Things platform MindSphere to help ADNOC predict pipeline leakages using only data analytics. To support the UAE’s Energy Strategy 2050, which has set a target of 44% clean energy generation, Siemens will also supply Dubai with a state-of-the-art plant which uses solar power to produce hydrogen. “The beauty of hydrogen is that you can produce it cleanly when there is a surplus of solar power and then transport it for use as a fuel,” explains Dietmar Siersdorfer, the company’s CEO for UAE and the Middle East. Visitors to Expo 2020 will be able to use vehicles powered by hydrogen produced by the plant.

Solar power for the hydrogen facility will be generated by the Mohammed bin Rashid Al Maktoum Solar Park, the largest single-site solar project anywhere in the world, which will generate solar power for less than 3 cents per kWh. Developed by clean energy giant Masdar and other partners, the solar plant even uses tiny robots to clean its thousands of solar panels in order to minimize operating expenses. It is yet another example of the UAE’s position on the cutting-edge of global energy innovation – a leadership position that will be on center stage when Expo 2020 opens its doors to celebrate the very best of human invention and ingenuity. ●





AMERICAN UNIVERSITY OF SHARJAH

Interview

CHANCELLOR OF THE AMERICAN
UNIVERSITY OF SHARJAH

Björn Kjerfve, PhD

PRH

How did the emirate of Sharjah evolve and how did the American University of Sharjah come to be?

BK

If we go back to the 30s, 40s and 50s, Sharjah was the center of the UAE. This is where everything happened. And why it happened here was because the UAE's first airport, which has been replaced with a modern airport outside the city, was the landing strip for the predecessor of British Airways, Imperial Airways, for planes on their way to and from India, mostly. They landed here and spent the night. Passengers would stay in the fort to protect themselves from raids from Bedouin tribes. In the 50s, Sharjah was bustling as most people in the country lived in Sharjah, it was a very lively place.

When the new UAE federation took power in 1971, all of the political decisions were made in the capital, Abu Dhabi. Through Sheikh Rashid bin Saeed Al Maktoum, and his son, His Highness Sheikh Mohammed bin Rashid Al Maktoum, the UAE's Vice President, Prime Minister and Ruler of Dubai, after him, Dubai started investing in a commercial model, and became the commercial hub of the emirate. So truly, Abu Dhabi is the capital, Dubai is the business center, and Sharjah is the cultural and academic center of the UAE.

Sharjah still accounts for over 34% of the country's total manufacturing industry in the form of thousands of small manufacturers. In the early 80s, High Highness Sheikh Dr. Sultan bin Muhammad Al Qasimi, the UAE's Supreme Council Member, Ruler of Sharjah, and President of AUS, was the architect of this emirate, and he built this university. He has been in power since 1972 and, as you may know, has earned two PhDs, both earned in the United Kingdom, one in history and one in political geography. He's truly a man of letters, an intellectual. His focus for Sharjah has been education, the arts and culture. Those are truly the things he has emphasized



American University of Sharjah campus



and what he believes in. In 1997, he completed the building of American University of Sharjah and the adjacent University of Sharjah, which opened their doors on the same day – 4th of October 1997. The University of Sharjah is more of a traditional university where you have men and women’s colleges and is three times our size – 15,000 students, basically.

We were the first university in the region that was co-educational, which was somewhat of a social experiment. Thankfully it has worked very well and we became a reference in Liberal Arts, and our model has been reproduced in other universities and institutions throughout the country.

Within two years of opening we set up a contract with Texas A&M University, in fact, to establish the College of Engineering at AUS. Importantly, we were accredited by the UAE’s Ministry of Higher Education and, shortly thereafter, by ABET, which is the organization in the US that accredits engineering colleges. Likewise, when we got our business school up and running, our business programs gained accreditation from an organization called the AACSB, also in the United States. And our architecture program is the only architecture program outside of North America to be accredited by the NAAB, which is the National Accreditation Body of Architects, in the US.

PRH

While academia is not traditionally associated with innovation, I understand AUS is responsible for a number of innovative programs in the UAE.

BK

In February 2017, the government put ‘Nayif 1’, the UAE’s first nanosatellite into space via a rocket which blasted off from Southern India. It’s a communication satellite which was built here on campus by seven Emirati engineering students and three professors. The Mohammed Bin Rashid Space Centre in Dubai then hired those seven engineers, who now work on space research.

We are still working on space research. We are working with drones, we have a drone academy on campus, we are working with various advanced radar products and much, much more. These are being dealt with by the departments of industrial engineering, electrical engineering, computer science and engineering, mechanical



engineering and so on. So, are we doing innovation? You bet! We have more than 40 courses offered on campus where innovation is a major component of the course.

Another way we are fostering innovation is that the government of Sharjah, through Shurooq, the government's investment arm, have made an agreement with us to operate a center on campus called 'Sheraa' which means 'sail' in Arabic, in operation for the last three years. Sheraa is an accelerator program for entrepreneurship and innovation. They take on 10 groups a year and run them through this accelerator program, bringing venture capitalist companies to help build and nurture innovative and mature companies right here on campus.

Last but not least, our campus is 123 hectares. North of our building, there are 175 hectares that we own as the university and we are developing what we call the Sharjah Research, Technology & Innovation Park, as our commercial arm. They have the same Board of Trustees as us, but it's really a free-standing entity of the university. It's run by the AUS Enterprises Limited Liability Corporation.

I think the synergies in research, innovation, IP and commercialization we can draw out can provide a boom for the companies and the university alike. It's very exciting! We are open to all sorts of ideas and collaborations. One example is a company called Skyway from Belarus, which is creating a transportation system that comprises a monorail system ten meters off the ground. The pods can hang under the monorail or sit on top and reach speeds of 100km an hour and can transport people or goods. We are in the construction phase of the first pilot project on a very large scale. The system will comprise a 2.8km-long track in the park. In itself, it's a research project requiring many technological studies, researchers and a multi-million-dollar investment, with risk and also opportunity.

PRH

What growth industries do you foresee the American University of Sharjah benefiting and contributing towards?

BK

In discussions with the AUS Board of Trustees and its Chairman, AUS President HH Sheikh Dr. Sultan, four years ago, a conscious decision was made that the next phase for the university will be moving from a very good teaching-centric liberal arts college to be a fully-fledged research university. The Ruler of Sharjah, our President, in his wisdom and generosity, decided to invest, on average, 100 million USD per year towards this transformation. We have full funding for 700 PhD students and we have our first PhD programme in Engineering Systems Management, operating since this September. The second PhD program coming online early next year is in Finance and then we have four STEM programs coming online next year. They are interdisciplinary institutes that we have created. One is 'Bio-



Sharjah is the cultural and
academic center of the UAE





science and Bio-engineering'. Another is 'Materials Science and Engineering', one is 'Smart Cities', involved in IoT and Artificial Intelligence. We have a summit going on downstairs on that topic. And the fourth is called the 'Gulf Environments Research Institute', which covers marine science, climate change and water, and energy. To support the institutes, we created two research centers. One is the High-performance Computer Research Center. Another is the Geospatial Analysis Center, using GIS technology for mapping and integrating with satellite imagery and other remote sensor photogrammetric data. And the third one is the newest one created, which is a joint research laboratory together with Beijing's Genomics Institute in Shenzhen, China. We are readying

a building to host this center and the initial project is the genomic sequencing of a thousand students on campus and then, eventually, to spread further afield. Obviously, as we will be dealing with sequencing and data, there will be a lot of policy development in the ethics of that, as well as the science, which is primarily bio-chemistry and bio-informatics to be able to read the most information out of the genomics data.

We are focusing on a number of different areas and putting money into them. This year we have invested US\$44 million on research and next year we are almost doubling that. We are also in the process of expanding our full-time faculty from 365 to up to 500 and, of course, bringing in visiting scientists and the 700 PhD students.

Simultaneously we are investing in our liberal arts program so it can grow in parallel to the rest of the university. We are imposing a certain number of credits in liberal arts education on all students, as we believe that by being eloquent and knowledgeable in other areas outside of their expertise will only help them be better citizens. ●

<https://www.aus.edu>

304 acres

Size of the AUS campus

100m

USD - invested into the University every year





PURE GENETIC LIFESTYLE

Interview

PURE GENETIC LIFESTYLE

Dr. Kim Rutgers

HOW INNOVATION IS
TRANSFORMING A NATION

Please could you tell us what the company PURE is about?

PRH

KR

We specialize in individual genetic research. So, we test above 600 genes in order to do preventive healthcare. We help you learn to work with the genes you are born with. When you know what genes you are born with, you can prevent diseases accordingly and you know better how to medicate as a result of the pharmaco-genetic analysis that shows you which medicine will work, not work, or could even be harmful.

So, rather than reactive healthcare it's preventive?

PRH

KR

Yes, and the other difference is that this is bespoke, it's tailor-made so it's not one-size-fits-all, it's especially for you because every person has a different gene package and it varies. So, each person needs a different and individual approach for their own healthcare, and also for their supplements.





The vitamins and minerals we provide are tailor-made as well, and optimised to your individual need.

We do the analysis which starts with a simple cue-tip swab. For the quality we seek, we take 3 swabs per person to ensure the best results.

PRH

How, when and why was this company born?

KR

The company was born as the founder Maarten Van Dijk has a friend, professor pharmacogenetics Ron van Schaik. They both discussed and talked and gradually the idea grew supported by a great deal of research and development prior to the company’s birth. Before you have an innovative product such as this, there’s a great deal of development and funding that goes into it.

PRH

So, you swab an individual and give them their gene pool or genetic makeup?

KR

It’s very low-threshold you can easily do the swab yourself, give/send the swab box back to us and our lab will run the analyses. After the analyses you will receive your results online and in a book. I can give you an example, so you can see how it works. As you can see here in the table of contents. (shows book) The analysis includes amongst others your genetic pre-deposition for Diabetes; Alzheimer’s; gluten; lactose and glaucoma. Glaucoma for instance is a disease which results in damage to the optic nerve and vision loss. When you know your pre-deposition, you can exclude certain risk factors such as high eye and blood pressure and lower your change of developing the disease significantly. Unlike doing the full body scan that now exists, if something comes out that could have been prevented with the knowledge from the genetic research, you are already too late in a way. Though having knowledge of the current status of your body can be a good addition to your general health screening. By using your analysis, you can prevent and reduce your risk of getting deceases and therefore healthcare cost. This could be interesting for insurance companies.

The analysis and the supplements are completely scientifically based. Our offering had one challenge, which was to make it accessible to anyone without a degree in genetic research, so we found a good balance, with a book and a personalised



webpage that explains your findings in a comprehensive way for all to read and to assess what actions to take in order to prevent health problems and even which medicine you should take.

PRH

It's a whole new way of looking at healthcare?

KR

For example, with diets it's often one-size-fits-all, but we can tailor the diets accordingly as opposed to have people try every diet available and find none work for them. There's a reason for that.

PRH

As it's very new, it must be very expensive?

KR

When I tell people the price they are surprised it's manageable for the amazing information you will acquire about your body. The price is 7,300 AED for the most elaborate analysis, which we call the health and nutrition analysis. We also have separate packages amongst others a vitality analysis that is popular with companies to give to their staff and one for instance for beauty only, for your skin and skincare products. As an addition to your analysis, we also have supplements and these are also tailor-made. So, the contents of these supplements are adjusted according to your genes. So, if you need lots of magnesium then the quantities of magnesium are higher.

Furthermore, the weight-loss analysis is very popular as it finally provides you with the truth about your body; will you lose weight from scratching fat, carbs or a combination out of your diet. We are all different, and as I said, there is no one size fits all.

PRH

Could you tell us a little about you Dr. Kim, where you come from and your background?

KR

I am originally from the Netherlands and I studied molecular biology. I did my PHD in neurodegenerative diseases, like Alzheimer's and Parkinson's at Leiden University, Technical University of Delft and Harvard Medical

When you know what
genes you are born with,
you can prevent diseases
accordingly





University. We wanted to find early detection methods for Alzheimer’s. If you detect it at an early phase it’s more easily treatable which was also a really innovative project and a big challenge. I always like a challenge and innovation because then you can be creative as I have tried to apply throughout my career.

PRH

Are there other companies like this on the market that you know of?

KR

Well there are, but ours is very thorough as we analyse 600 genes which ensures accuracy. The more information you have, the more accurate you can be in everything. At the moment we are frontrunners in the industry and ahead of the curve.

PRH

Who are you looking to partner with in the UAE?

KR

We are speaking with pharmaceutical companies and pharmacies to partner with them, with professional sports clinics as we also have that data available, a sports version so that professionals know how they should train their people and build their muscle in the most effective way. And companies like banks, law firms are interested in the vitality analysis to keep their staff as healthy as possible. And also, with upmarket hotels and their spas.

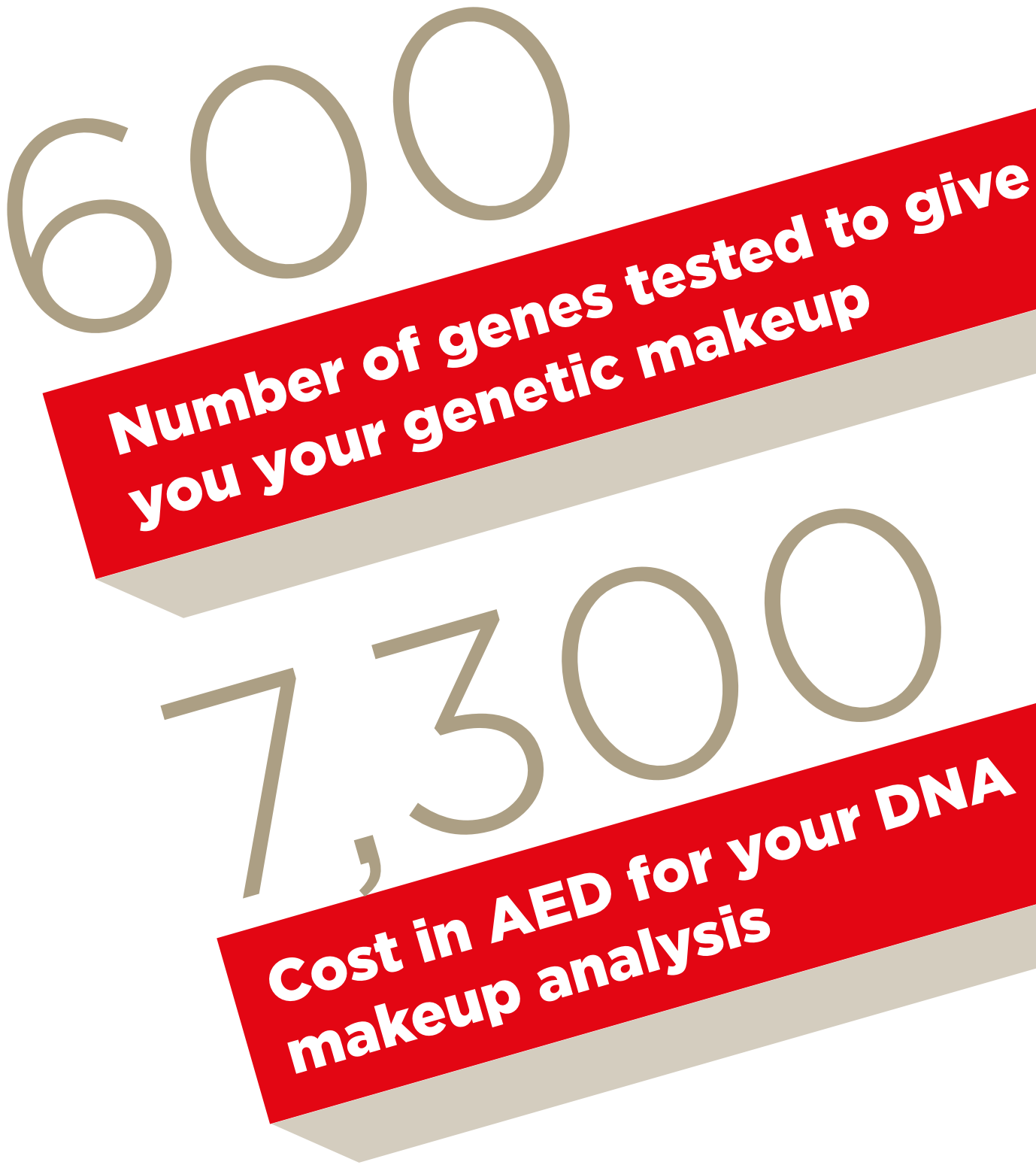
PRH

Last but not least, why the U.A.E.?

KR

The UAE is a country that strives to be embracing technological advancement and has it high on its agenda. We aim to benefit the people of the UAE as our analysis can seriously reduce the risks of amongst others obesity which is a challenge here as well, as it is in many developed countries.

Furthermore I think the beauty products fit well with the region, people here are generally very well groomed, and you see beautiful skin, so we think it will create a lot of interest in that part of our product space as well. I believe that the best place to start is in the UAE when it comes to rolling out in the region. It’s advanced and they have a big focus on innovation which is why I think healthcare and innovative products are welcome. ●





KIZAD

Interview

CEO, KIZAD

Samir Chaturvedi

PRH

What is your vision for the future of KIZAD?

SC

We see KIZAD as one of the most vibrant industrial and logistics hubs for the region in the next ten to fifteen years.

Abu Dhabi Economic Vision 2030 very clearly outlines a long-term plan to diversify the emirate’s economy and transform into a manufacturing and investment destination than just an oil economy. KIZAD is an integral part of this vision and one of the primary vehicles to drive Abu Dhabi’s diversification strategy.

It is very exciting to be a part of such a vision and this growth story. I personally am honoured to be able to make a small contribution to this process. Our focus at KIZAD is to execute this vision, by creating a collaborating and innovative environment involving both public and private enterprise.

PRH

How fast is the Khalifa Port and industrial zone growing? What is driving this growth?

SC

Khalifa Port is the fastest growing port in the world today. It was inaugurated on 12/12/2012 and in less than six years our volumes are already at 1.5 million containers. By 2023 we should be reaching around 8.5 million containers. This is based on committed and contracted volumes. The Khalifa Port



“Innovation means constantly improving the small tasks or processes for the future and better than how it is being done today. That is where the Emirati culture and the entire ethos of the UAE shines.”

development was initiated as part of the Abu Dhabi vision, and we are very proud that this vision is supported by some of the biggest shipping lines. MSC and COSCO have made Khalifa Port their hub with very long-term commitments to develop the port and work with us to use it as the gateway to the region. There is over AED 10 billion of committed capital into Khalifa Port by Abu Dhabi Ports and its partners. This includes AED 4 billion by Abu Dhabi Ports in the next 5 years, AED 4 billion by MSC in the next 30 years while over AED 2,3 billion will be invested by COSCO over the lifetime of its agreement with Abu Dhabi Ports.

PRH

Can KIZAD help towards the notion of Abu Dhabi and the UAE as a logistics hub?

SC

Today if you talk about multimodal connectivity, the UAE has established itself as an undisputed hub in the region. Interestingly the UAE was not geographically privileged to be that hub. We are not on the major trade routes or major international sea routes, yet the sheer vision, grit, determination and a combination of quality soft and hard infrastructure, which the government has invested in, has brought this success to the UAE.

The UAE’s ability to succeed as a logistics hub is due to its outward-looking vision - it’s about understanding the industry needs and helping them reach their markets. We are constantly working with our customers to help them reach their markets faster, cheaper and more efficiently. My customers operate here to serve the regional and global market, which includes Africa, the Indian subcontinent, the Middle East and CIS - how can we make them more efficient? This is our constant focus.

In KIZAD today I have a very fast-growing port, connected to the entire world with the biggest shipping companies. We are also getting huge interest from feeder operators on the short sea routes and we are creating a multipurpose port for bulk cargo and liquid cargo. All of this is on the sea side, providing connectivity within our target markets.



On the air side, we are situated equidistant from two of the largest airports in region. Within a 1.5-hour drive from our port one can reach five major airports in the region. Getting that connectivity firstly creates speed, but more importantly it creates security for our customers by limiting supply chain risks. So even in the case of an unfortunate accident in one of the ports or airports, the customers will reach their markets through an alternate gateway and this creates sustainability in supply chains. Also, this competitive field with multiple options constantly drives the operating costs down.

PRH

How would you say innovation is transforming the UAE?

SC

I have been living in the UAE for almost 18 years and one thing I have understood is that innovation is not big news here, it is a day-to-day activity. Innovation means constantly improving the small tasks or processes for the future and better than how it is being done today. That is where the Emirati culture and the entire ethos of the UAE shines. Nurturing this innovation strategy is something that the leadership has done so very well in the last few decades and the country has succeeded at doing things that everyone thought was impossible. For example, Abu Dhabi port is the first automated port in the region and the only one to test such operations in harsh regional weather conditions. This not only creates operational excellence, it also makes the life of the operators much easier. Driverless trains for the metro system, the Hyperloop and Masdar City, Abu Dhabi's flagship sustainable urban community, are all happening in the UAE.

It's not just the big innovations - we have multiple small initiatives that will enhance day-to-day life in times to come. We are trying to work with small, young innovators to see how we can support them to make things better or different, even in small ways. At Abu Dhabi Ports we run an interesting programme of internal innovation called 'Ibtikar', which means innovation in Arabic, where people can submit ideas that results in better and new ways of doing business. If an employee's idea is implemented, there are monetary rewards - more than 1,500 ideas have been executed since the programme was initiated in 2013.

PRH

How is KIZAD investing in technology and innovation to cut costs for customers and speed up processes? And in what ways are you sustainable?

SC

KIZAD is the master developer of this 416 sqkm industrial city and creating an environment that fosters sustained innovation is a key focus area for KIZAD. It's not only about innovation within our own operations, we work with our customers to help and support them innovate.

Various entities of Abu Dhabi Ports, including KIZAD, Khalifa Port, and Maqta Gateway (the innovative and award-winning Port and Trade community system), are all part of an integrated ecosystem to help sustainable industrial and economic development in the region.

Khalifa Port has done a huge amount of work to create a sustainable environment. If you look at the map you can see that Khalifa Port has been developed quite





far offshore, effectively on an island at a huge cost, just to ensure that the Ras Ghanada Coral Reef is protected. The sea water desalination system at KIZAD, which supports heavy industry, ensures that water pumped back to sea is fully cooled with no harm to marine life. These efforts, investments and the constant collaboration with our customers creates a sustainable way of doing business that includes new innovative products, community recycling and waste management initiatives. These are all areas where KIZAD is trying to set the highest standards.

Let's also talk about our port and trade community system, Maqta Gateway, which touches customers' lives far beyond the port and KIZAD activities. Through investments in Maqta Gateway's digital infrastructure, we are integrating customer and stakeholder activities in trade, commerce and industry onto one platform. The innovative solution called 'MAMAR' was developed to fulfil the need for a 'one-stop' platform that connects multiple entities such as government services, shipping lines, port operations and trade entities making it easier for them to work together. In a recent third-party study, it was established that the MAMAR project contributed to Abu Dhabi Ports' sustainability with a 50% reduction of paper-based work done by customers, a 50% reduction in human error, and a 20% saving in operational costs. Maqta Gateway has saved the community AED 128 million, over 936 million physical trips, 19,000 man-days, and 6,800 tons of CO2 emissions.

This year we are piloting a Blockchain based system called 'Silsal' with MSC on the maritime operations with some very exciting results coming out of it. In the next stage it will be rolled out to the port community, freight forwarders and logistic companies building further efficiencies and cost savings to the overall trade processes.

Apart from the actions that we undertake ourselves as KIZAD, we are also focused on creating the right environment for innovative and collaborative growth among companies operating in KIZAD. For example, one of our customers, Taweelah Aluminium Extrusion Company (TALEX), is developing a new alloy that is used to create components for Porsche vehicles in Germany. Any innovative success by one of our companies in KIZAD that can help improve life in some corner of the world is as much a matter of pride as any accolades we ourselves would win for innovative work.

We will work with our customers in a collaborative way, embracing disruptive technologies such as Blockchain, Artificial Intelligence, Robotics, and IoT to realise the UAE's goals in raising productivity, spreading prosperity and opening up new paths for growth. This is success for all of us and we shall continue to work on creating a better tomorrow by doing things better, cheaper, faster, together. This is the focus and this is what we strive towards continuously. ●

www.kizad.ae

