

Opening doors

The Abdul Latif Jameel Magazine

Winter 2018/19

In this month's issue we talk about

Almar Water Solutions
helps tackle Kenyan
water scarcity

Featured Articles

Creative. Communication Design. Data. New creative agency set to reshape region's media sector through AI

Storing Up Success: How Batteries Are Revolutionizing the Global Energy Market

J-WAFS achievements – a proud history of progress

IEA report confirms bright future for solar PV installations

Abdul Latif Jameel has been investing from the heart of Arabia across the promising MENAT region and beyond for over seventy years – shining a light on new opportunities for investment and growth. Trusted to open new doors; now, we are opening more.

Helping people who strive for better, to have better: better means; better lives; better prospects. Helping businesses who look further, to reach further. Into new markets, new homes, and new considerations.

We can do this because we are determined in our quest for new potential; and we succeed because we never lose sight of why this matters. In this magazine, we showcase our investment in the development of the economies and the quality of life of people in the region.

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Storing Up Success:

How Batteries Are Revolutionizing the Global Energy Market



As battery storage systems become increasingly advanced, and research and development continues around the world at an unprecedented rate, what is the current outlook for this exciting technology – and how could it impact energy planning in the future?

As the rise of renewable energy continues to gather pace, a range of hurdles need to be overcome. Among the biggest challenges is how to balance the grid during fluctuations in supply and demand. In other words, what happens to renewables-based power generation if the sun isn't shining or the wind isn't blowing?

One solution is already transforming power generation projects around the world: battery storage.

According to KPMG, the widespread and rapid implementation of intermittent renewable energy sources, namely solar photovoltaic (PV) and wind, is "catalyzing efforts to modernize electricity systems



Tesla's Gigafactory: Tesla broke ground on the Gigafactory in June 2014 outside Sparks, Nevada. In mid-2018, battery production at Gigafactory 1 reached an annualized rate of roughly 20 GW/h, making it the highest-volume battery plant in the world (source: tesla.com).

around the world". A key part of this modernization program is the development, introduction and growth of battery storage systems.

Spurred by a surge in manufacturing demand for electric vehicles², as well as technological advances

that are seeing large-scale installations store renewable energy and provide back-up options to traditional power supplies, the cost of battery storage is falling dramatically. At the same time, the capacity and performance of battery storage systems is increasing exponentially.

¹ [Electricity Storage Insight](#), KPMG, 2016
² [New Energy Outlook 2018](#), Bloomberg NEF, 2018



The 'skateboard' platform from the RIVIAN EV range afford compact storage and low center of gravity.



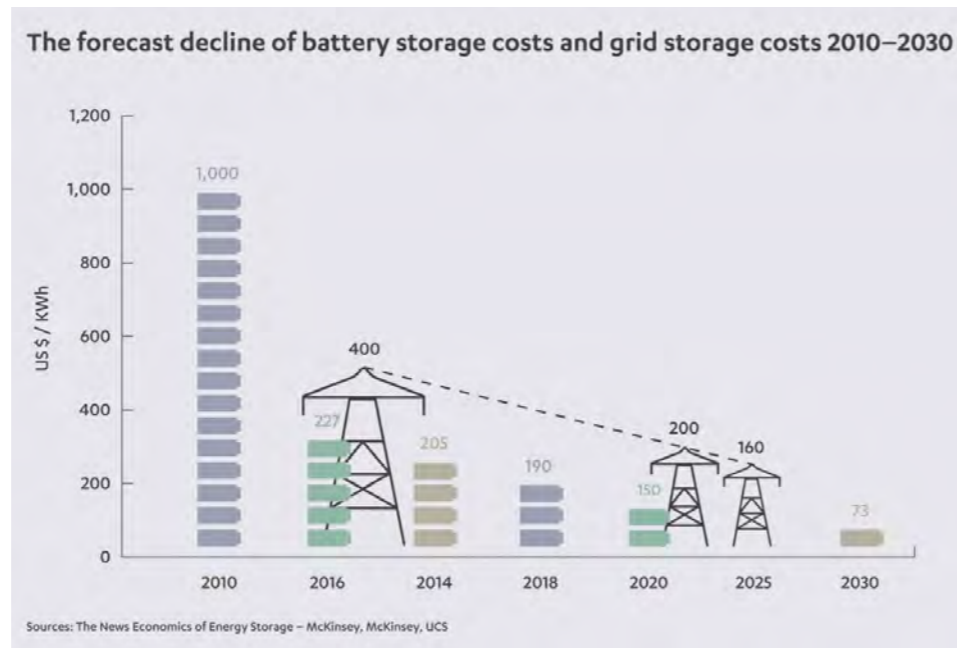
RIVIAN

At the 2018 LA Autoshow, EV start-up RIVIAN grabbed attention when it unveiled the R1T - an electric pick-up truck with a maximum single-charge range of 645 km. Aiming to change the EV paradigm, RIVIAN believe each journey should leave a mark on the human spirit, but not the planet so they are developing vehicles and technology to get out and explore the world. At their battery center in Irvine CA, their rugged 'skateboard' platform is engineered for this with the batteries slung low between the wheel-base.

Three batteries are available for the R1T: a 180 kWh battery (range: 645 km), 135 kWh model (range: 490 km), and 105 kWh option (range: 370 km). With a DC fast charger, it can be charged up to 160 kWh in just 50 minutes.

A pioneering development in Chile is already turning these predictions into reality. Fotowatio Renewable Ventures (FRV), part of [Abdul Latif Jameel Energy](#), is developing a groundbreaking 540 GW/h hybrid solar-wind energy project with integrated battery storage capabilities.

The project, FRV's third in Latin America, is the company's first hybrid wind-solar project and the first to use battery storage, enabling it to provide 24/7 renewable power.



Seb Henbest, Head of EMEA at Bloomberg New Energy Finance (BNEF), says: **“The arrival of cheap battery storage will mean that it becomes increasingly possible to finesse the delivery of electricity from wind and solar, so that these technologies can help meet demand even when the wind isn't blowing and the sun isn't shining. The result will be renewables eating up more and more of the existing market for coal, gas and nuclear.”**³

When the conditions are not suitable for solar or wind power, the batteries automatically step in and discharge their stored renewable energy, maintaining an uninterrupted supply of renewable energy into the network at all times,” explains Daniel Sagi-Vela, CEO of FRV.

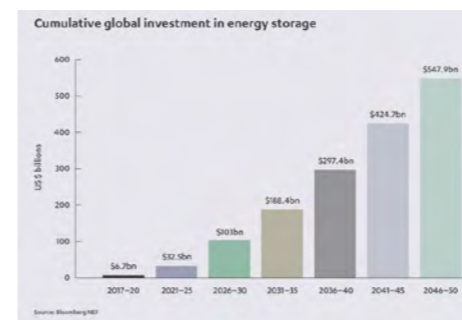
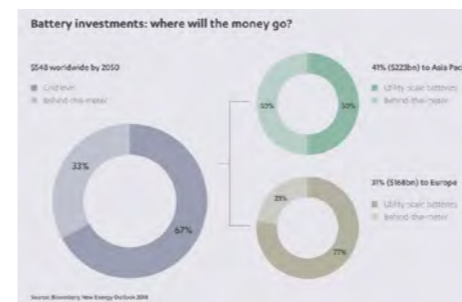
Similar innovations are transforming the sustainability of renewable energy projects all around the world, including in Japan, where Tokyu Land Corp,

Mitsubishi UFJ Lease and Finance and Green Power Development Corporation are constructing a 92 MW solar power plant with a 25 MW/h lithium-ion battery in Kushiro-cho, Hokkaido⁴.

The current position of battery storage Experts at McKinsey & Co. firmly believe that “there is... no doubt that storage's time is coming”⁵.



Bloomberg NEF predicts that US\$ 548 billion will be invested in battery advanced capacity technology by 2050, with 41% of that heading to Asia Pacific and US\$ 168 billion pouring into Europe⁶.



Of the 1,291 GW of new capacity it anticipates, two-thirds will, it says, be at the grid level, with the other 33% coming from private installations in homes and businesses⁷.

Against this backdrop, the ability of battery storage technology to generate headlines around the world is understandable. In part, that has been

The battery, which stores excess energy from wind turbines at the Hornsdale wind farm⁸, holds enough power for 8,000 homes for 24 hours, or more than 30,000 houses for an hour during a blackout⁹. Within its first month of operation, it showed its value on two separate occasions. It responded in just 140 milliseconds when the Loy Yang powerplant in Victoria, which is coal-fired, suffered a power cut in December 2017¹⁰. Tom Koutsantonis, Australia's State Energy Minister, drew a stark contrast with the alternative, Torrens Island power station, which “would take half an hour to an hour to energize and synchronize into the market”¹¹.

It is a basic law of energy provision that if power demand exceeds generation, an alternative source must provide a balance. Yet even traditional power plants with steam turbines can take 30 seconds to take effect¹². So while Tesla's battery responded far quicker than Torrens Island, it is significantly outperformed by a battery storage solution used on Germany's network that can increase its output power from 0 to 100% in 40 milliseconds¹³. Sanjeev Gupta, a British billionaire, is already planning to install a battery bigger than Tesla's as part of a US\$ 1bn renewable energy plan in South Australia¹⁴.



The battery at the Hornsdale Power Reserve, South Australia.

³ [New Energy Outlook 2018](#), Bloomberg NEF, 2018

⁴ [Japan's Largest-scale Battery-equipped Solar Plant to Be Built in Hokkaido](#), Solar Power Plant Business, 6 September 2017

⁵ [Battery storage: The next disruptive technology in the power sector](#), McKinsey & Company, June 2017

⁶ [New Energy Outlook 2018](#), Bloomberg NEF, 2018

⁷ [New Energy Outlook 2018](#), Bloomberg NEF, 2018

⁸ [Tesla's enormous battery in Australia, just weeks old, is already responding to outages in 'record' time](#), The Washington Post, 26 December 2017

⁹ [Elon Musk just met his 100-day deadline on a \\$50 million bet and Tesla's giant battery is ready to roll](#),

Business Insider Australia, 23 November 2017

¹⁰ [Elon Musk's massive backup battery took just 140 milliseconds to respond to crisis at power plant](#), International Business Times, 25 December 2017

¹¹ [Elon Musk's massive backup battery took just 140 milliseconds to respond to crisis at power plant](#), International Business Times, 25 December 2017

¹² [Distributed Energy: Innovation in solar](#), PwC, 15 August 2016

¹³ [Distributed Energy: Innovation in solar](#), PwC, 15 August 2016

¹⁴ [Sanjeev Gupta: \\$1bn South Australia renewable energy plan will mean cheaper power](#), The Guardian, 15 August 2018

Meanwhile, in Mexico, the country's first grid-scale battery has been installed as a backup to a 130MW microgrid serving a car factory in Monterrey. "We needed something that could react extremely fast," said Matt Ginzberg, Principal at Arroyo Energy, the developer of the battery¹⁵.

The economics of success

Just as important as the speed of performance of battery-based power generation, however, are the economic issues.

For any new development to reach large-scale deployment in the energy sector requires a favorable economic landscape. With the advance of technology, the economics of battery storage are becoming impossible to ignore. "Grid-scale batteries need to make almost US\$ 200 a megawatt-hour for each charge-discharge cycle to break even. But that could dip below \$100 by 2020¹⁶," according to a BNEF report released in July 2018.

According to 2015 study *The Economics of Battery Energy Storage*, prepared by the Rocky Mountain Institute (RMI), energy storage makes sense when multiple functions can be achieved with an installation. This can then translate into multiple sources of revenue or avoided cost credits (illustrated below).

The installation of battery storage systems also leads to significant savings from not needing to build 'peaker' plants that operate just a few hours a day¹⁷. The sums, it is argued, make the upfront cost of a battery-based facility all the more lucrative¹⁸.

It is this win-win combination that has prompted officials from New York State to set a target of deploying 1,500 MW of energy storage by 2025¹⁹. This is equivalent to the electric demand of 20% of all New York State homes. Its plans, which position "energy storage ... at the forefront of the dynamic changes occurring in New York's energy sector",

are set to deliver a raft of benefits²⁰, including:

- Reducing CO₂ emissions by one million tons over 10 years
- Creating 30,000 jobs in the storage sector by 2030
- Delivering the ability to meet peak demand surges as renewable energy takes a greater proportion of the state's energy mix

A greener future for desalination plants

Combined renewable energy and battery storage solutions also have the potential to drive forward the sustainability agenda in other industries vital to the 'infrastructure of life', such as water provision.

One of the biggest challenges in improving the sustainability and commercial feasibility of water desalination plants is power. Conventional thermal desalination plants consume a lot of energy, which leads to high carbon emissions. Even if renewable energy solutions, like solar or wind power, are used, these power sources do not operate 24 hours a day, 7 days a week, so oil or gas-based turbines are still required to plug the gaps in the renewable energy supply, generating a large carbon footprint.

The new generation of reverse osmosis desalination plants are considerably more energy efficient than thermal plants, as much as ten times more efficient in fact, but the lack of a round-the-clock renewable energy source still poses a problem.

With a combined renewable energy and battery storage solution, like the one FRV is pioneering in Chile, it will be possible to power the desalination plan with uninterrupted renewable energy 24/7.

Not only would this make the desalination process carbon neutral, it would free up vast quantities of oil

for export, rather than using it to power desalination plants, particularly immensely power-hungry thermal plants.



"A renewable energy solution would also offer more flexibility in terms of locating the desalination plant. You wouldn't need to site the desalination plant close to a traditional power plant any more. It could be built much closer to the towns and cities where the water is actually needed."

Carlos Cosin
CEO of [Almar Water Solutions](#), part of Abdul Latif Jameel Energy

Power Holdings ([TEPCO](#)) – one of the Japan's national utilities and grid operators – plans to offer its customers solar PV-plus-battery energy storage

You'd automatically charge the batteries in certain parts of the day when you're not using other utilities or equipment."

In May 2018, batteries formed a key part of the thinking that helped to push California to become the first U.S. state to make solar panels on new homes and low-rise apartment buildings compulsory from 2020²⁵. Meanwhile in Nova Scotia, Canada, [Nova Scotia Power](#) is planning to leverage battery power to help it meet a 40% renewables target by 2020.

As part of a pioneering trial, it installed high-capacity batteries at 10 customer homes. The batteries are linked to an electrical line powered in part by wind turbines. The move was described as a "game changer" by Jill Searle, Senior Program Manager at Nova Scotia Power. She said: "Battery storage technology is the next big thing in terms of how Nova Scotia Power will be able to provide that reliable, 'always on' service to our customers²⁶."

In a similar approach, households in Germany can purchase a battery storage-based power package, including a PV system and 4.4 KW/h storage

Powering a private energy revolution

While it is clear the advances in battery storage are likely to redefine the energy and water desalination sectors, it is not just large-scale infrastructural developments and public systems that could benefit.

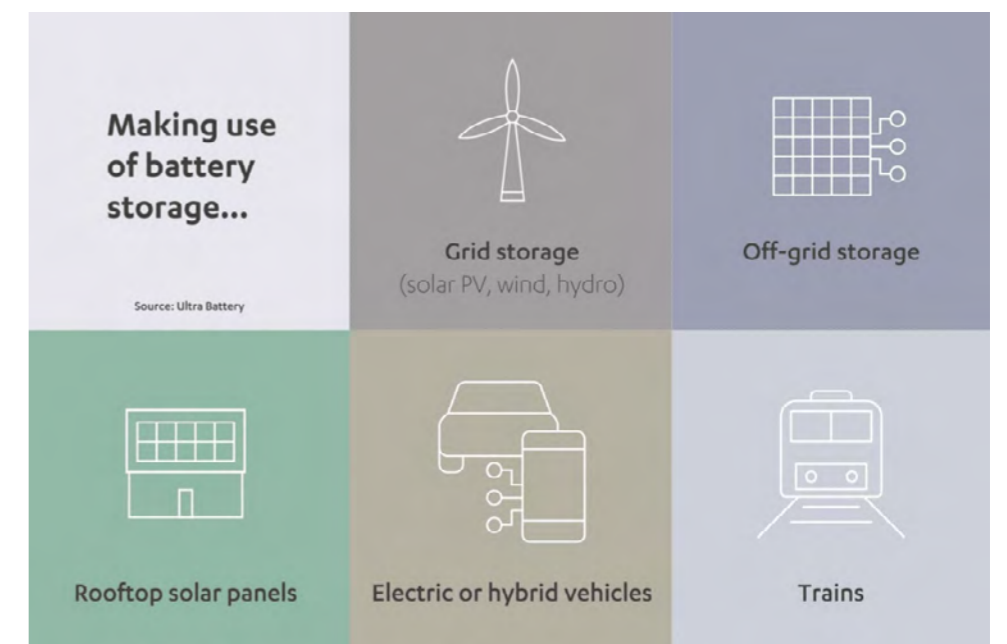
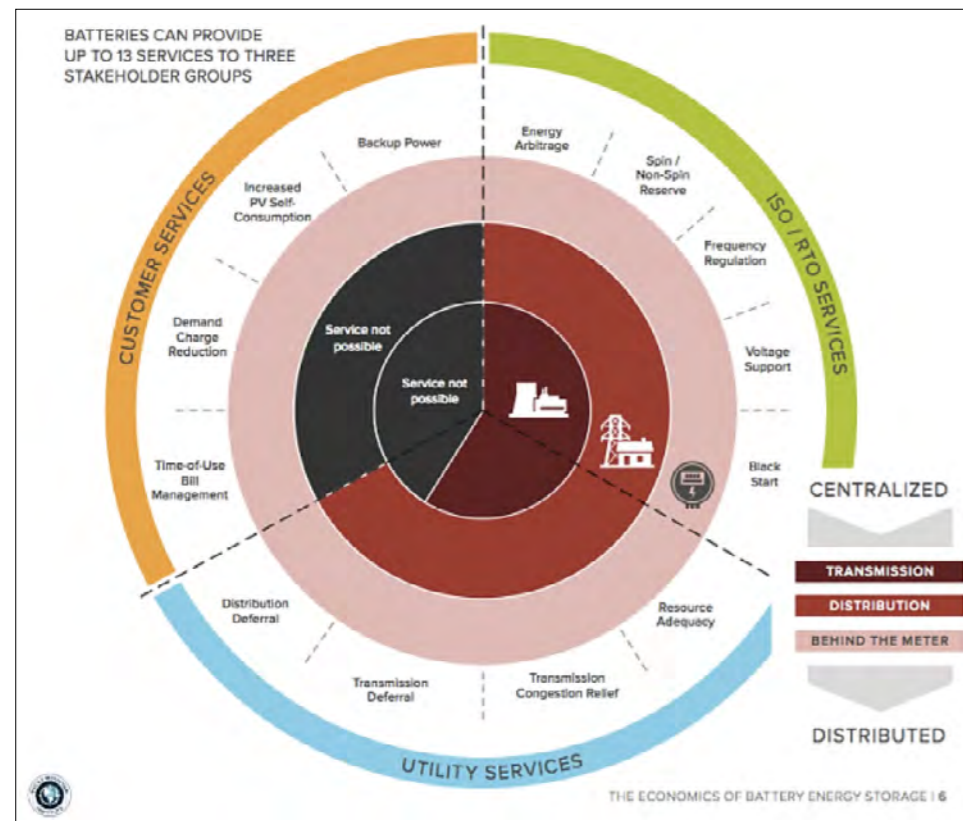
There is growing excitement from leading industry figures about the potential for battery storage to transform energy use at the residential level, too, with private individuals powering their homes around the clock from solar panels and household battery storage facilities.

McKinsey & Co. is among those leading the positive assessments for household battery storage. "Eventually, combining solar with storage and a small electrical generator (known as full grid defection) will make economic sense – in a matter of years, not decades, for some customers in high-cost markets²¹."

The initial signs of this promise becoming a reality are starting to appear in South Australia, where solar panels and batteries are being installed in 50,000 homes²². In the Far East, Tokyo Electric

for their homes, as part of the country's move towards zero energy standards for housing²³.

"There are different technologies and a lot of research and development going on around batteries²⁴," says Daniel Sagi-Vela, CEO of FRV. "With battery storage, you could run everything in a house – including air conditioning – from the panels you put on your roof.



¹⁵ Mexico Gets Its First Grid-Scale Battery – at a Car Factory, Green Tech Media, 17 December 2018

¹⁶ There's a Hidden Battery Play in the 'Extremes' of Power Prices, Renewable Energy World, 31 July 2018

¹⁷ Hyundai building 150 MW energy storage battery in South Korea, Digital Journal, 7 December 2017

¹⁸ Hyundai building 150 MW energy storage battery in South Korea, Digital Journal, 7 December 2017

¹⁹ New York unveils roadmap to 1.5 GW storage by 2025, Utility Dive, 21 June 2018

²⁰ New York State Energy Storage Roadmap and Department of Public Service / New York State Energy Research and Development Authority Staff Recommendations, 21 June 2018

²¹ Battery storage: The next disruptive technology in the power sector, McKinsey & Company,

June 2017

²² Tesla Tapped by Australia for Solar-plus-Storage Virtual Power Plant Plan, Renewable Energy World, 5 February 2018

²³ Renewable retail plans from Japanese utility TEPCO include home battery rollout, Energy Storage News, 5 April 2018

²⁴ The Business Breakfast, DubaiEye 103.8, 17 January 2018

²⁵ California poised to be first state to require solar panels on new homes, The Guardian, 9 May 2018

²⁶ Nova Scotia Power Engages Eager Elmsdale Residents to Test Intelligent Feeder Pilot Project, Nova Scotia Power, 8 February 2018

device that can meet the electricity needs of a small family during the evening and the night hours²⁷.

At the heart of a new future for Saudi Arabia

It is now widely accepted that the introduction of battery storage facilities will be a game-changer in the industries that are so vital to the 'infrastructure of life' – power and water.

Omar H. Al Madhi, CEO of Abdul Latif Energy Saudi Arabia and Senior Managing Director and Member of the Board at Abdul Latif Jameel Investments, is leading his organization's efforts in the country to be at the forefront of this exciting phase. He brings together global knowledge and a highly experienced leadership team in Abdul Latif Jameel Energy and FRV, in a determined bid to deliver a cleaner, healthier future for Saudi Arabia and the wider MENAT region.

Mr. Al Madhi's ambitions align closely with the stated goals of Saudi Arabia's Vision 2030 plan, which highlights that "by preserving our environment and natural resources, we fulfill our Islamic, human and moral duties²⁸". In a further indication of the country's preparedness to support new technological advances such as battery storage solutions, it adds:



"Preservation is also our responsibility to future generations and essential to the quality of our daily lives. We will seek to safeguard our environment by ... reducing all types of pollution."



Indeed, as we prepare to enter the third decade of the 21st Century, battery storage looks set to play an increasingly integral role in the world's energy mix. For environmental, efficiency and economic reasons, a technology that was once widely ignored is now emerging as a key support mechanism for both grid-scale power and private residences – as well as offering exciting new possibilities in the automotive sector. Abdul Latif Jameel relishes the opportunity to be at the center of this latest energy revolution as we continue to strive to deliver a better future for all.



"By combining battery storage with Abdul Latif Jameel Energy's best-in-class renewable energy provision across solar PV, wind and water solutions, Saudi Arabia can achieve a transformational change and position itself as a strategic giant in the world's renewable energy market for the 21st Century and beyond."

Omar H. Al Madhi
CEO Abdul Latif Energy Saudi Arabia



Abdul Latif Jameel Energy 6th Australian project to supply clean energy to 45,000 homes

Up to 150 jobs will be created after Fotowatio Renewable Ventures (FRV), part of Abdul Latif Jameel Energy, secured its sixth solar photovoltaic project in Australia, with the signing of a power purchase agreement for the 67.8 MW ac Goonumbla Solar Farm in New South Wales.

The agreement, which has been signed with Australian electricity generation and retailing company Snowy Hydro, was completed in November 2018. Construction will begin in April 2019, and operations will start in June 2020, on a plant that will produce enough clean energy to supply 45,000 homes and cut CO₂ emissions by 140,000 tons annually.

Spread across an area of 385 ha, five full-time jobs are expected to remain once the construction of the plant is completed 280 km north west of Sydney.



Carlo Frigerio, FRV Managing Director Australia, said: "We are pleased to be working with Snowy Hydro on this important project contributing to the ongoing diversification of the electricity generation resources in NSW and Australia."

Goonumbla Solar Farm is FRV's sixth venture in Australia, following Winton Solar Farm (85 MW ac) in Victoria, Royalla (20 MW ac) in the Australian Capital Territory, Moree (56 MW ac) in New South Wales, and Clare (100 MW ac) and Lilyvale (100 MW ac) in Queensland.

Daniel Sagi-Vela, CEO of FRV, said: "We want to continue leading the production of renewable energy in Australia, a country that is showing a great commitment to boost renewable energy projects. The Goonumbla Solar Farm will enable us to develop our expansion plans in the country while contributing to a more sustainable future for Australia."



²⁷ Electricity Storage Insight, KPMG, 2016

²⁸ Vision 2030, Kingdom of Saudi Arabia



Abdul Latif Jameel Machinery – at the heart of Saudi Arabian mining

With private investment encouraged across mineral-rich Saudi Arabia, what does the future of the country's mining sector look like?

As Saudi Arabia continues to strive to meet the ambitions laid out in [Saudi Vision 2030](#), economic diversification remains a key objective. The country's mining sector, which grew 6.3% in the first quarter of 2018, offers rich potential for those looking to develop non-oil revenues – including overseas investors.

Gold, bauxite, phosphate and copper are each abundant in Saudi Arabia. The country's Ministry of Energy, Industry and Mineral Resources ([MEIMR](#)) estimates its mineral wealth at US\$ 1.3 trillion, with gold reserves alone of US\$ 240 billion. By 2030, it aims to have increased the mining sector from US\$ 17 billion today to US\$ 64 billion.

At the heart of this surging industry sits Abdul Latif Jameel Machinery, a leading provider of commercial vehicles and industrial and heavy equipment – from global brands including Komatsu, Manitou, Teksan and Toyota Industrial Equipment.

Opening Doors spoke to Arif Chishti, Managing Director of Abdul Latif Jameel Machinery, to find out more about Saudi Arabia's mining sector and how Abdul Latif Jameel Machinery can help to attract and facilitate the necessary private investment to ensure mining's success over the coming decade.

Q: How realistic is the ambition to quadruple the size of Saudi Arabia's mining sector by 2030?

Vision 2030 is very clear and committed towards opening this sector and bringing in international contractors with specialist skills. Saudi Arabia has always been rich in minerals, but it's still relatively untapped – despite the country's vast resources. With this in mind, quadrupling the size of the mining sector is actually not too ambitious. One of the key elements will be private investment from international companies with mining expertise. These companies have been warmly welcomed, and this kind of private-public partnership is perfectly in line with Vision 2030.

Q: How has Saudi Arabia's mining sector changed in recent years?

The Government started to increase focus in the mining sector around seven years ago, inviting international contractors to compete on major tenders. Since then, seven international companies have started work on four large projects covering gold, phosphate and bauxite. Based on the information we've got from surveys so far, phosphate – which is used a lot in the fertilizer sector – and bauxite are the main two minerals in Saudi Arabia. Five years ago, a gold mine contract was awarded, and Abdul Latif Jameel Machinery is a key equipment supplier on that mine. Then two years ago, a phosphate mine contract was awarded, and



Abdul Latif Jameel Machinery is a key equipment supplier on the project. On both these projects, Abdul Latif Jameel Machinery provides on-site parts and workshop facilities.

Q: What impact are these changes having on Abdul Latif Jameel Machinery?

The international contractors investing in Saudi Arabia expect a certain level of service, and they expect it 24/7. Mining is not a straight-shift operation. Generally, equipment works for the best part of 18 hours each day, so the contractors need suppliers that can support those operations. We're very strong in that area. We provide an end-to-end service that enables our customers to focus on their own areas of expertise, while we look after all their equipment and operational issues. In at least two cases, we've been told by the contractor that our standards are equal to, if not better than, those they are accustomed to in more advanced mining markets.

Q: What are the typical services and equipment that Abdul Latif Jameel Machinery provides?

First and foremost, we're able to conduct reconnaissance surveys on site, and then recommend the best possible fleet for that situation, using computer simulations and scenario reporting. That's our more consultative approach. We can also help to source funding through our partners in different leasing companies, which is well received by contractors as it helps them to spread risk. Finally, we can help international companies to limit their expenditure by providing them with on-site workshops, parts warehouses and skilled technicians. We will hire the skilled technicians and in effect run a whole dealer operation at the site, which increases the uptime by eliminating some of the delays

you'd otherwise experience simply because Saudi Arabia is such a large country with so much travel time. It's a total wraparound service. We're able to provide, service vans, construction equipment and generators for each project, making it easier for the contractor as they only deal with one professional supplier.

Q: How does Abdul Latif Jameel Machinery help young Saudi Arabians fulfil their potential?

We have training programs for both employees and non-employees (apprentices) at the Abdul Latif Jameel Machinery Training Center. Heavy machinery, and specifically mining, is a specialized industry. A lot of the machinery is very hi-tech. We're talking about the likes of Internet of Things and drone technology just to complete mine layouts. But as well as technical skills, we've also got to consider the physical health of a person and train them fully in health and safety. If you work in a mine and don't know the safety principles, it could cost you your life.

When we're recruiting, we first look at a person's health and physical competence. Can they work in extreme temperatures - as high as 50 degrees Celsius or as low as -5 degrees Celsius. Do they have allergies that would make them unable to cope with the high air pollutants present at most sites? After that, we train them on the technical skills. This is practical knowledge taught in our Training Center, rather than textbook learning. Furthermore, we also train our customers' own operators - and they could be from anywhere in the world.

Q: You're able to provide equipment from brands include Komatsu, Manitou and Teksan. How important a part of your proposition are those brands?

The brands we've selected, such as Komatsu Construction Equipment, Manitou material handlers, and Teksan generators, are leaders in their sectors. What sets us apart is the after-sales service we provide. So, by only working with the world's leading manufacturers, and building on that with the Abdul Latif Jameel philosophy, we're able to deliver a truly best-in-class service.

Q: Is there more growth potential available beyond the ambition to quadruple the size of the Saudi Arabian mining sector?

A typical mine might last for at least 25 years. So, while there is an immediate and direct growth in revenue with a new mine, over time it also acts as a catalyst and leads to in direct benefits in other areas. For example, local companies that provide ancillary products and services to these sites. Over the medium term the benefits and growth are in the overall package, which will develop local companies, raise industry standards, and provide more jobs to Saudi Arabian nationals.

Q: What are your ambitions for Abdul Latif Jameel Machinery over the short and medium term?

We want to cement our position as the preferred partner in the mining sector, because that's where our value addition can really be felt - whether it's through site simulation studies, or on-site services, workshops and parts. Beyond mining, we are also starting to move into transportation. Coaches that we now supply, are involved in religious tourism, carrying pilgrims visiting Makkah and Medina. In spite of the challenging economic times, a company like ours is here to stay - and that's what our clients need.



Jameel Arts Centre Youth Assembly to offer unprecedented opportunities

Young creative talent in the UAE is set to receive a boost with the launch of a pioneering Youth Assembly program from Art Jameel.

The Jameel Arts Centre Youth Assembly features nine artists aged 18-25 with a breadth of experience and specialties: Shaikha Al Ketbi (visual artist), Salwa Al Khudairi (architect), Abdulghanni Al Nahawi (designer/sculptor), Hassan Adebayo Bello (social entrepreneur), Sara Bin Safwan (assistant curator/social entrepreneur), Jenan Ismail (graphic designer), Arpana Murugappan (multimedia designer/coder), Dina Tawil (digital designer/illustrator), and Ray Yafi (graphic designer).

Together they will act as ambassadors for the [Jameel Arts Centre](#), organize youth-related events, encourage youth participation, and establish relationships with other arts organizations, institutions and businesses. They will also receive mentoring, support and resources as they look to produce a series of public events and research projects between November 2018 and April 2019.

The Youth Assembly program is designed to offer young cultural leaders first-hand insights into the workings of an arts institution. It will also provide exposure to local, regional and international arts opportunities, as well offer career development through round-table and one-on-one events with artists and expert practitioners.





The site for the Solanilla Solar Farm in Trujillo, Spain

Abdul Latif Jameel Energy secures financing for La Solanilla Solar Farm in Trujillo, Spain

Construction of the 50 MW dc La Solanilla Solar Farm in Trujillo, Spain, has already started after Fotowatio Renewable Ventures (FRV) closed its financial agreement with Banco Sabadell in November 2018. The region of Extremadura, features plentiful natural resources and is one where the FRV team has extensive prior experience.

The construction phase of the project is set to create 300 jobs, while the finished facility is expected to be operational by the end of 2019, delivering 103 GWh of clean energy per year – enough to supply 25,000 homes.

Daniel Sagi-Vela, CEO of FRV, said: **“The financial agreement to develop La Solanilla Solar Farm highlights FRV’s commitment to carry out renewable energy projects that create green-tech jobs and boost local economies. With this latest agreement we will help to promote the use of renewable energy resources in Spain. This aligns to our ongoing commitment to be a global reference for, and leader in, sustainable and environmentally-conscious energies.”**

Andrea Fontana, Managing Director of FRV Europe, said: **“We are truly honored to be working in Extremadura again**

and particularly in Trujillo, where the foundation group of FRV initiated its path in renewables 12 years ago.

This project is the result of the clear focus of Extremadura’s government in the renewable energy sector, a mindset that is also shared by Trujillo city council.”

This is FRV’s tenth project in the country, including Extremadura Solar Farm (57.5 MW ac) in Extremadura, Serrezuela Solar Farm (32.50 MW ac) in Andalucía, and Olmedilla Solar Farm (11.52 MW ac) in Olmedilla de Alarcón.



First public-access contemporary arts library in the UAE launches with over 2,000 items



More than 2,000 books, catalogues, journals and works of literature have been made publicly available in Jameel Library, the first open-access contemporary arts library and resource center in the United Arab Emirates.

Jameel Library is an open contemporary arts research center dedicated to cultural histories of the Gulf and its neighboring regions, located at the heart of the Jameel Arts Centre in Dubai. The growing multimedia library collection features books, journals, catalogues, theses, artists’ files and ephemera in both English and Arabic. It also includes significant material gathered from local, regional and international artists as well as academic, arts and cultural organizations.

This bilingual collection will expand over the coming years. Organizers hope to eventually include artists’

files and multimedia content. It will complement Jameel Arts Centre’s ongoing programs and exhibitions, and already includes material on some of the artists featured in the Art Jameel Collection.

Uns Kattan, Head of Learning and Research at Art Jameel, said: **“The Jameel Library is the first public research center to focus on the cultural histories of this region; it’s a tremendously exciting and urgent project”.**

“This is not a ‘silent library’, but instead one that is alive with talks and events, discussion and debate. It’s also been a very collaborative project, with cultural institutions across the UAE and wider region recommending, and even donating, books and materials to us. Art Jameel also commissions writers and researchers, so that we’re telling the “history of the present” as well



as that of the past. Like the Jameel Arts Centre, the Library is open to all. We look forward to welcoming the public.”

Free and open to all, the library also has an Online Public Access Catalog (OPAC), which can be searched entirely online by a global audience. Digitizing materials is a core tenet of the library’s future plans.



Lean management expert Takao Sakai discusses the benefits Kaizen thinking could deliver to Saudi Arabian businesses



Takao Sakai, a lean management expert and author of *The Secret Behind the Success of Toyota*, visited Riyadh in December 2018 to attend the inaugural *Four Principles Kaizen Award*. In an exclusive interview with *Opening Doors*,

Mr. Sakai explained his family links to the Toyota Way, how Kaizen principles can help to deliver success for businesses across Saudi Arabia, and the key moves any organization can make to secure enduring profitability as the *fourth industrial revolution* approaches.

Q: Your great grand-uncle, Dr Kotaro Honda, worked with the founder of Toyota, Kiichiro Toyoda, from its earliest days to the 1950s. How proud are you to be delivering the message of the Toyota Way all these decades later?

About 80 years ago, when Toyota Motor Company was a tiny start-up in rural Mikawa province, in Japan, Kiichiro Toyoda had every reason to give up. He faced difficulties with finance, technology and available talent.

Technology was the major bottle-neck. Japan had been trying to catch up with the West since the late 19th Century, but it still lacked the knowledge for industrial-scale production. Kiichiro went to see Professor Honda, my great grand-uncle, in Tohoku University, to ask whether it was possible for the Japanese automobile industry to catch up with Ford and GM, who dominated at the time. Dr. Honda, who was from the same province as Toyoda, replied: "Of course we can," reflecting the 'can-do', entrepreneurial spirit of Mikawa culture. Honda went on to help Kiichiro personally in his efforts to achieve his business ambitions, and he also sent many of his colleagues and students to work with Toyota. Today, more than 80 years later, Toyota has global revenues of US\$ 260 billion and profits of US\$ 20 billion.

Toyota still has that Mikawa spirit of creating something from nothing. We believe in and nurture the power of people's creativity and intelligence to create and deliver value for society.

The Kaizen principles behind what became known as 'The Toyota Way' have not changed for centuries. It is a very practical and universal philosophy. It can be applied to any business, in any industry, delivering real value while simultaneously creating profit and steady

growth. Our way works in any country or society, adopting a scientific approach that sees facts first and regards people as assets to help create value and profit. I am proud to have the chance to spread this idea around the world.

Q: Do you think Dr. Honda would be surprised at just how far the Toyota Way has spread around the world?

Yes, of course. But I also think he understood the universal application of his ideas right from the outset. Dr. Honda helped a variety of industries in the 1930s and 1940s, not only to provide knowledge and innovation, but also to nurture and enable talented individuals to tackle problems and drive innovations for their respective industries. He nurtured leaders who can think and use knowledge purposefully.

In the Kaizen philosophy, this is called Hito-zukuri - the process of creating people who can think by themselves to keep delivering better products and process. In the end, it is people's knowledge and creativity that create value for us, and that concept is universal in today's knowledge-based era.

Dr. Honda also said that "everything needs to be purposeful" and Kiichiro Toyoda's idea was always purposeful. He wanted to "fill every

¹ Artificial Intelligence (AI): Healthcare's New Nervous System, Accenture, 2017

road in the world with cars made by Toyota.” His mission was clear. Eighty years later, if you see the current state of the world’s roads, Kiichiro’s vision was realized to some extent. But Dr. Honda and Toyoda would still say “it is not yet enough – we need more.”

Q: Has the way lean management is implemented changed or advanced over the years you’ve been involved?

Yes, it has. Lean management in the West tends to focus on the Toyota Production System (TPS) and the Gemba concept of continuous improvement. But The Toyota Way includes other aspects of business, such as market research, product planning, design, product development, and research planning.

In Japan, I teach the entirety of the management system. Some companies then quickly understand that Gemba will not always bring them to the ideal state – the real Toyota Way includes value creation by design and development (TPD) alongside value-mapping techniques (TPS). Product- and service-level design and development are critical to make a whole company’s lean system.

Q: What are the biggest differences you’ve seen between the start of your career and now?

I began my career in Nippon Telephone and Telegraph Corporation (NTT) just as the internet was starting to emerge. Back then, NTT had the largest market value of any company in the world.

I suggested to the head of the lab that NTT should establish a new organization to create tech products to sell in the internet era, using Toyota’s engineering system to create and deliver the value and profit. But at the time, nobody could understand why we would do that.

Today, for many start-ups around the world, the de-facto standard organization structure is the heavyweight product management (HWPM) system – a term coined by Kim B. Clark at the Harvard Business School to describe Toyota’s engineering system. And today I’m still explaining to old-fashioned Japanese companies the same things that I said to NTT all those decades ago.

Finally, though, some companies are now starting to implement the full Toyota Motor Corporation management system, not just Gemba, to try to make their organization better.

Q: What, in your opinion, elevates lean management above other business improvement methodologies?

Great question – and one that’s very important, because I’ve seen so many cases of Western-style business improvement methodologies that are harming Japanese companies. That’s why I wrote my book about Toyota’s real management system.

Lean management is still very important. Everybody in every organization needs to learn lean thinking and techniques. But

Western-style business improvement methodologies, which are still widely taught in business schools, need alternatives. The Toyota total management system, including TPD, is the strongest candidate.

The Toyota management system is based on focusing on the process to create value for the customer – and that involves both people and machines. For example, in a factory setting the production machinery is designed by production technology engineers who have the knowledge to create the product duplication process with minimum cost and capital. The machine operator will also do kaizen of his assigned process to make it better. Someone’s job is not just do what they are told to do, but instead to contribute to create the ideal process for the best possible outcome. The same principles are then applied across every aspect of the business and over time the organization accumulates new knowledge and capability to grow.

This accumulated organizational knowledge is the real asset of your company – but it is not represented in its financial statements.

In Toyota management thinking, intangible assets such as people and processes are regarded as real asset. The focus is to accumulate organizational knowledge about product, process and people’s capability – the three key intangible assets of every business. Toyota is successful because it creates intangibles through purposeful organizational effort.

Q: What makes lean management

such an appropriate fit for the Middle East?

Toyota management is versatile, scientific and objective. It also encourages people’s creativity, and organizational knowledge accumulation, to keep delivering value for the customer. This system can be applied to any organization, in any culture, in any country.

By investing its wealth from the oil industry into the people that produce products, services and experiences that will sell in the world market today and for decades to come, the Middle East can further strengthen its position. Knowledge-based industries can be built anywhere: Toyota started from nothing in the most rural area in the center of Japan.

Q: Do Lean principles need to be adapted to the Saudi Arabian context, or can the same principles be applied everywhere?

I am quite new to the Saudi Arabian context, so I need to learn about the people and culture, but I can say that the Toyota Way is very versatile. American, Chinese, Korean, European and Latin American business have all used it successfully. I’d highly recommend every organization in every country to learn this sort of value-creation science.

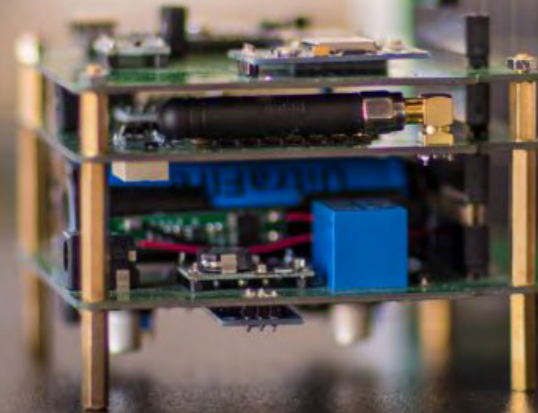
Q: As technology and things like artificial intelligence advance, do you think lean management will remain as relevant to businesses over the next 20 or 30 years as it has over the last 50 years?

No matter what technology become available, it is people who create the value and buy the value. Technology is a tool, a means to create the value. The Toyota Way is very versatile for the information/knowledge value era.

Q: Have you been aware of the work Four Principles have been doing across the Middle East, and how encouraged were you by the quality of winners at the Four Principles Kaizen Awards?

I’ve been very impressed by Four Principles and the work it is conducting, while the Four Principles Kaizen Awards were a major success. The winners all understood the underlying concepts of lean management. Hopefully, together we can help them to reach the next level in their lean management journey over the next few years.





Blast off! Jordan launches its first nanosatellite with the support of FRV

Partnership with the Crown Prince Foundation delivers successful mission

Jordan's first nanosatellite was successfully launched in December 2018 after receiving financial support from Fotowatio Renewable Ventures (FRV), a key part of [Abdul Latif Jameel Energy](#).

The launch took place in Vandenberg, California. The satellite – called JY1-SAT – will gather images of Jordanian tourism and the country's cultural spaces and is part of the [Masar Initiative](#).

Through a collaboration agreement with the Crown Prince Foundation (CPF), FRV has played a significant role in progressing one of Jordan's most innovative projects.



Nicolas Fasquelle, Managing Director of FRV (MEA), said: **"The promotion of research and educational projects in the countries where we operate is one of FRV's key values. We are proud to support initiatives like this, which will contribute to the recognition of the enormous talent and research work carried out by young Jordanians."**

Eighteen young engineering students, working with other academics and consultants, have built on the knowledge of Jordan's first interns at NASA to successfully develop the JY1-SAT satellite.

Dr. Tamam Mango, CEO of the Crown Prince Foundation, said: **"We appreciate this strategic alliance we have built with FRV, as such partnerships support us in making big progress in achieving CPF's development objectives as well as fulfilling our mission in supporting Jordanian youth."**



J-WAFS' Prof. John H. Lienhard elected as a fellow of AAAS after outstanding career



John H. Lienhard, the Abdul Latif Jameel Professor of Water and Food and the director of the Abdul Latif Jameel

Water and Food Systems Lab (J-WAFS), has been elected as a fellow of the American Association for the Advancement of Science (AAAS).

The award recognizes Professor Lienhard's lifetime body of work and places him alongside previous winners including Thomas Edison (1878), Linus Pauling (1939) and Grace Hopper (1963). Four of the 2018 Nobel Prize laureates – James Allison, Arthur Ashkin, Frances Arnold and George Smith – are AAAS-elected fellows.

Professor Lienhard, who has been recognized by AAAS for his work on energy-efficient desalination within his "distinguished contributions to thermal science and engineering", will be honored at a ceremony in February 2019 at the AAAS Annual Meeting in Washington, D.C.

Professor Lienhard said: **"AAAS is one of the oldest scientific organizations in the United States. I have been a member for 30 years, and in fact my parents also received AAAS's Science magazine at our home when I was a child. I am deeply honored to be recognized as a fellow of this esteemed organization, and I strongly support its commitment to using scientific principles to understand and tackle the world's greatest challenges – including a secure and sustainable supply of water and food for everyone."**



How J-WAFS is making a global impact



Rice plants heavy with grain in southern Ibaraki Prefecture 30/08/15. Photo Credit © Mainichi/Takuma Nakamura

Since it was established in 2014, the Abdul Latif Jameel Water and Food Systems Lab (J-WAFS) at the Massachusetts Institute of Technology (MIT) has gathered attention around the world for its pioneering work to help tackle water and food challenges in the face of climate change, population growth, and increasing urbanization and development across the globe.

The future of food: beating the heat with genome edited crops

By Robert Sakai-Irvine, [The Mainichi](#) Staff Writer

The Mainichi, the English-language news site of the Mainichi Shimbun national Japanese daily, recently featured the work of J-WAFS in an article about the future of food including a look at an exciting J-WAFS-funded project relating to crop resilience and gene editing. The [article](#) originally published on November 28, 2018, is

reproduced below by kind permission. Wheat with DNA tweaked to beat the heat, and redesigned rice that can flourish in hot, dry conditions. Work is now underway to bring these kinds of genetically edited foods to dinner tables around the world, with the new rice estimated to be in bowls by about 2039, all necessitated by our warmer – and in some places much drier and much more populous – planet.

“Climate change poses an enormous threat to food security for large parts of the world,” said Professor John H. Lienhard V, director of the [Abdul Latif Jameel Water and Food Systems Lab \(J-WAFS\)](#) at the Massachusetts Institute of Technology ([MIT](#)) of the United States in emailed comments to [The Mainichi](#). He added that **“changes to food production practices and even staple foods in our diet will be necessary.”**



Crop yields fall about 5 percent for every degree of temperature rise, according to the United Nations

and the Intergovernmental Panel on Climate Change ([IPCC](#)).

Meanwhile, an IPCC report released on October 8th, stated the Earth could be an average of 1.5 degrees Celsius hotter compared to the preindustrial era as soon as 2030. And that warmer world may see significant decreases in rainfall: 5 to 10 percent in large parts of Mexico, southern Africa, the Middle East and southern China, and up to 20 percent in areas of southern Europe and North Africa. At the same time, the world’s population will continue to grow, to 9.73 billion by 2050, and 11.2 billion by 2100, according to a U.N. estimate.



Rice fields are seen in southern Ibaraki Prefecture in this 06/07/15 photo. Photo Credit: © Mainichi/Takuma Nakamura

In Japan, the Cabinet's 2015 climate change adaptation plan noted that rice yields were already falling. Furthermore, under the IPCC's worst-case 3-degree warming scenario, "if a shift to high-temperature-resistant varieties does not proceed, the ratio of first-class rice will decrease nationwide," except in the north of the country.

MIT's Lienhard noted that everyone can help counter these threats through not wasting food, using green energy and thinking "about how your personal food choices can be most sustainable." Meanwhile, "science and technology will aim for major results."

Enter the aforementioned not-so-thirsty crops.

"I think the genes and pathways that we're identifying through our approach – spanning cell biology to whole plant physiology – could be good candidates for GM (genetic modification) intervention" to keep yields up, MIT assistant professor [David Des Marais](#) told The Mainichi in an email interview.

Des Marais and his team are working on a J-WAFS-backed project to find the genetic foundations for responses to heat and water stress in a grass species related to wheat and

rice. They are looking for gene networks activated by these conditions, and how plants then allot resources like nutrients to survive. He added that genetic editing based on the team's research could be "a good opportunity to improve crop resilience and food security in at-risk locations around the world."

Another endeavor Des Marais called "very exciting" is the C4 Rice Project. A 10-institution effort headquartered at Britain's Oxford University, the project's goal is to genetically alter rice – a "C3" plant, so-called because of the three-carbon molecules it makes during photosynthesis –

into "C4" plants. The chemical processes in this type of plant is much more efficient at converting solar energy into forms the plant can use (and some we can eat) through photosynthesis – using sunlight to make glucose from carbon dioxide and water – than its C3 cousins. In short, C4 plants produce more grain from the same amount of sunlight.

What's more, "C4 plants do particularly well in hot and dry places – generally yielding up to 50 per cent more than C3 plants whilst using less nitrogen and less water," essential for plant metabolism, project head and Oxford professor Jane Langdale told The Mainichi in an email exchange. For a warming world with a lot less rainfall in some areas, "the implications are enormous," she added.

However, none of this is easy. The C4 project is nothing less than the genes-up redesign of one of the rice plant's basic life processes, giving it new chemical properties and even new cell structures in its leaves. Furthermore, genes are 'networked,' meaning that genetic expression is based on interactions among the molecules themselves and other substances and factors, so finding which combinations of genes do what is no easy task.

There are also widespread worries over the future consequences of genetically modified organisms (GMOs). On July 25, the European Court of Justice ruled that any gene-edited plants – even those not incorporating any outside DNA – fall under the European Union's GMO Directive prescribing an extremely strict regime of checks and official approvals before a GMO can go to market.

On the other hand, an August 20th report by an expert panel at Japan's Environment Ministry recommended regulating

genetically modified organisms that include DNA inserted from other sources, but relaxing rules for GMOs that have had genes disabled or deleted, reasoning that such genetic changes also occurred in nature.

"A lot of plant biologists were really shocked by the recent EU developments," commented MIT's Des Marais, adding, "I hope other regions of the world approach next-gen GM crops with a more open and evidence-based mind." Oxford's Langdale, meanwhile, predicted that there would be "different ground rules" by the time C4 rice was ready to market, "not least if food shortages are as extreme as predicted."

If the GMO concerns are overcome, both Des Marais and Langdale were confident genetically edited plants could provide for our hotter world's growing population, though a long road lies ahead.

"The (C4 rice) project is on target but it is expected that there will need to be a 10-year engineering phase after the current phase ends next year, followed by possibly 10 years of breeding. This puts an end date of 2039," said Langdale.

Still, Des Marais emphasized that we also must work on better preserving the food we already grow, managing water and soil better to boost yields, and helping small-scale farmers tap the funds they need to maximize the potential of their land. "To feed 10 billion people we're going to need ... better varieties, better cropping systems, better access to markets," he said. "GM is part of that, but possibly not the most critical."

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Photo Credit © Yusef Doubisi/AFP

Women set to drive significant automotive and economic growth

Three sectors – insurance, automotive sales, and service industries – are expected to enjoy significant growth as women in Saudi Arabia take to the roads in ever increasing numbers.

As part of the bold reforms sweeping through Saudi Arabia as it works to achieve the ambitions of its Vision 2030 plan – including increasing women’s participation in the workforce from 22% to 30%¹ - the country issued its first driving licenses to women in June 2018².

The decision is one of the most high-profile reforms to be implemented over the past few years and promises to deliver enormous change to individual freedoms, household logistics, business operations and the domestic economy.

Abdul Latif Jameel Motors, as official distributors of Toyota and Lexus vehicles throughout Saudi Arabia, is at the center of this ongoing revolution, deploying almost 100 female front-line staff to showrooms across the country with the aim of providing advice and support to women looking to purchase their first vehicle.

Women can also enjoy convenient and affordable access to driving schools across the country after Abdul Latif Jameel Motors’ ‘Together from the Start’ initiative supplied over 500 Toyota vehicles to driving schools at Princess Noura Bint Abdulrahman University in Riyadh, King Abdulaziz University in Jeddah, Imam Abdulrahman bin Faisal University in Dammam and Tabuk University.

Hassan Jameel, Deputy President and Vice Chairman of Abdul Latif Jameel, said: **“Allowing women to drive is a significant milestone for Saudi Arabia and our society as a whole, and**

we are delighted to be playing a part in this process.”

Early analysis has already highlighted the scale of the potential impact: in Riyadh alone, almost 750,000 female drivers are expected to be on the road by 2020³. A further 800,000 will join them in Makkah province, with the total number of female drivers in Saudi Arabia set to reach three million by 2020 – representing up to 20% of the country’s adult female population⁴.

Such a significant increase in the number of road users is set to have key economic benefits for the country, with businesses in a range of fields expected to enjoy exponential growth. Car leasing alone is expected to enjoy an annual growth rate of 4% between 2017 and 2025, for example, while women-only driving schools with female driving instructors is another sector where high growth rates are anticipated.

The impact is expected to be even bigger for automotive sellers and motor insurance providers. According to PwC’s projections, automotive sales are set to increase by 9% per year until 2025, which will in turn facilitate “significant opportunities for market entry in the used cars segment in the short to medium term⁵”.

Motor insurance has not traditionally penetrated the Saudi Arabian market to the same degree as some other countries. But that, too, could be about to change.

Following an announcement from the Transport Ministry in mid-August that women will also be able to register as taxi drivers, for example, ride-hailing app Uber has announced a partnership with underwriter AXA to provide

coverage for its drivers in Saudi Arabia, including newly hired women⁶.

These commercial developments, alongside the expected surge in female car ownership, are key contributory factors in PwC’s expectations that the Saudi Arabian motor insurance industry will grow 9% per annum until 2020 to reach a total value of US\$ 8 billion – a near three-fold increase on the US\$ 2.9 billion in premiums collected in 2017⁷.

“Women driving will ultimately give them more mobility in every sense – logistically, socially and economically – while at the same time have a positive impact on the country’s development in the long term, which is a key pillar of Saudi Vision 2030,” said Hassan Jameel.



¹ Saudi Arabia job growth likely as woman driver ban ends, BBC, 22 June 2018

² Saudi Arabia issues first driving licences to women, BBC, 5 June 2018

³ Women driving the transformation of the KSA automotive market, PwC, March 2018

⁴ Women driving the transformation of the KSA automotive market, PwC, March 2018

⁵ Women driving the transformation of the KSA automotive market, PwC, March 2018

⁶ Saudi women driving auto insurance growth, Oxford Business Group, 26 October 2018

⁷ Saudi women driving auto insurance growth, Oxford Business Group, 26 October 2018

Machine learning set to transform the face of global healthcare



Revolutionizing healthcare the intersection of computer science, big data, and life sciences.

Leading the revolution in disease prevention, detection, and treatment for humanity Anantha P. Chandrakasan, Chair of J-Clinic, talks to Opening Doors about his hopes for the newest MIT/Community Jameel partnership.

Anantha P. Chandrakasan, Dean of the [MIT School of Engineering](#) and the Vannevar Bush Professor of Electrical Engineering and Computer Science, is the recently appointed Chair of the Abdul Latif Jameel Clinic for Machine Learning in Health ([J-Clinic](#)). Over the next few years, Anantha and the J-Clinic team will be pushing the boundaries of global healthcare research to deliver real-world impacts in disease prevention, diagnostics, and drug discovery and development.

Opening Doors spoke to Anantha about the latest partnership between MIT and [Community Jameel](#), and how he plans to maximize its impact in the coming years.

Q. When you first heard about the proposals for J-Clinic, what was your initial reaction?

AC: I first discussed it with Mohammed Jameel in September 2017. Straightaway, I was excited by the opportunities of combining global healthcare with some of the leading-edge AI research at MIT to enable new ideas to emerge.



Regina Barzilay, (second from left) a Professor at MIT and a breast cancer survivor, discusses her own experience with the disease and how she uses data and machine learning to advance detection and treatment at a recent Washington Post Live event © The Washington Post. Hear more [here](#).

We already had people working on machine learning at MIT, and others on healthcare, and there was some work at the intersection of the two. I saw J-Clinic as an opportunity to bring that intersection together and make a truly global impact with our work in this crucial field.

Q. How heavily involved was MIT in these fields before the creation of J-Clinic?

AC: We were already involved in research around AI and healthcare, linked to our proximity to Boston's world-leading healthcare cluster. We have the Institute for Medical Engineering and Science ([IMES](#)) here at MIT, the Computer Science and Artificial Intelligence Laboratory ([CSAIL](#)), and many more

departments, centers and labs at MIT. In fact, when we were defining our '[Quest for Intelligence](#)' initiative, we found there were 200-plus principal investigators at MIT working on AI related topics, including healthcare-related research.

J-Clinic is a way to encourage collaboration between them all, because the innovation we're seeking is only going to happen if we bring together researchers working on machine learning and AI with those working on healthcare technologies.

We also need to foster close connections with the hospitals and with the industry players and innovators that can help to commercialize some of these ideas. Collaboration and innovation have little value in isolation. There is a whole

ecosystem that needs to come together to make sure innovation is translated into impact, and that's what makes J-Clinic so exciting. J-Clinic can be the catalyst for this new type of collaboration.

Q: What has been the current impact of AI in healthcare, and how much further is there to go?

AC: It's still in the very early stages. The idea of AI, and particularly machine learning, has recently re-emerged because of advances in image recognition technology, the exponential growth in the power of computing/GPUs, and the availability of huge amounts of data.

Early breast cancer detection has been one of the successes so far – in fact, one of our faculty colleagues, Regina Barzilay, has done some pioneering work on the use of machine learning for breast cancer detection. But overall, AI in healthcare is still a very new field.

What really excites me about this whole area is the potential for these new technologies to have an impact far beyond big hospitals in big towns and cities. It could transform healthcare in a wide range of settings worldwide, including rural facilities and emerging markets.

Q: Are we talking about a fundamental revolution in healthcare, or is it just a case of improving current practices?

AC: A bit of both. Certainly, it will streamline and make much more

personalized healthcare possible. We will be able to track an individual's data, understand it in relation to the wider population, and customize treatments more individually. That's a very exciting opportunity.

But ultimately, I'd love to see this technology looking at the prevention of diseases. These are the more futuristic opportunities. Perhaps we'll be able to detect tumors even before radiologists can see them on a mammogram – that's the kind of ambition we're working towards. The first achievement is likely to be detection, then better treatment, then personalized treatment, and finally disease prevention. That's our ultimate goal.

Q: Using AI and machine learning for disease prevention sounds like science fiction. Is it realistic?

AC: Not for every disease, but I believe we can certainly make progress on several different fronts, enabled by the kind of unique collaboration that J-Clinic can provide.

One of the biggest challenges is around access to data, because today very little of the data that's collected is actually used. There is bound to be hidden knowledge buried in that data, we just can't access it. In time, I believe there will be advances that allow us to access a lot more of the data that's collected.

Q: How quickly might we see some practical results from J-Clinic?

AC: It's hard to say. There have been a lot of innovations recently, but there need to be many more to get to where we want to be. So it will be a combination of both long term and short-term results. This is reflected in the way J-Clinic is set up. Some of the funding is going to target the long term, more basic research that has a longer time horizon. Other funding will target solutions that are closer to commercialization and look at how we can help to accelerate these ideas from the lab to impact, working with MIT's Deshpande Center for Technological Innovation.

Q: How did you decide on J-Clinic's three stated areas of focus – preventative medicine, diagnostic tests, and drug discovery and development?

AC: We looked to see where we could make the biggest impact. With diagnosis, for example, I'm thrilled that J-Clinic will not just target the hospitals with the best facilities. We want to do diagnosis in rural settings, like India, for example, where they may not have access to mammograms or there may not be a single doctor for an entire village. The promise of bringing AI technology to healthcare environments that may not have the kind of resources enjoyed by the developed world is incredibly exciting.

In preventative and more personalized medicine, it's exciting to consider being able to target and create drugs for a particular person. At the moment, it's a completely open playing field. And we can also use machine learning to guide the process of drug discovery, creating drugs that target very specifically-defined groups of people.

Q: What are your ambitions for J-Clinic over the next five or 10 years?

AC: In the short term, we'll look to develop new algorithms and have an immediate impact with some of our ongoing work on detection,

Developing cost-effective diagnostic tests to detect and alleviate health problems



Jonathan Gootenberg and Omar Abudayyeh holding a paper strip that displays a positive SHERLOCK readout

MIT researchers are working on embedding machine learning techniques into devices such as wearables and wireless biosensors that may be able to both detect and alleviate health problems. With these low-cost devices, machine learning and data inference can be performed in a small footprint, mitigating the need for large, cloud-based infrastructures. The potential for broad reach and global impact is high.

Making an Impact

Feng Zhang, the James and Patricia Poitras Professor in Neuroscience, and James Collins, the Termeer Professor of Medical Engineering and Science, have pioneered a technology called SHERLOCK (Specific High-sensitivity Enzymatic Reporter unLOCKing) that adapts the CRISPR gene-editing technology to target RNA and can be used as a rapid, inexpensive diagnostic tool. And technologies such as high-throughput mass spectrometry that can analyze the content of single cells in tissue biopsies are also enabling scientists to better predict and detect disease.

diagnosis, and drug discovery. I'd like to explore how we can make partnerships with both hospitals and industry, particularly with regards to deploying our ideas, and we also want to spin out our research and create start-ups to

help drive the next generation of healthcare innovation.

As a personal goal, I'd like to take this technology to all parts of the world. Our researchers love to solve these kinds of problems, and I'm very keen to encourage them to find the solutions needed to move this technology forward worldwide.

Set against those ambitions, though, is the reality that getting access to data will be our biggest challenge. It is something we will have to solve. The better access to data we have, the better our prediction and treatment approaches are going to be.

Finally, some of our research has to be focused on the ethical use of these technologies. Those questions are not scientific, but they are equally important if we want to successfully deploy our research.

Q: Could AI and machine learning close the gaps between the quality of healthcare people can access in different parts of the world?

AC: Yes, I believe so. That's a big part of it. You can certainly envisage a situation where machine learning acts as the first step in deciding who, in a rural community, should go to a bigger hospital in the nearby town, for example. But there is a lot to do before that. What new kinds of devices will we need to take these new systems out into the real world? What innovations and algorithms will we need to develop to make best use of the data we have? And can we work with governments to subsidize some of the equipment healthcare workers will need?

Q: How pleased are you with the strength of J-Clinic's leadership team?

AC: I'm thrilled. Having two MacArthur fellows as the co-leads, covering machine learning and health from different perspectives, is something to be very

excited about. [Professor James J. Collins](#) is the leader of synthetic biology, and [Professor Regina Barzilay](#), is the leader of machine learning for health. Then there's Institute [Professor Phillip A. Sharp](#), a Nobel laureate who has advanced basic science and brought his innovations into the commercial world, giving us expertise in research and entrepreneurship. All these people are experts in their field, and all of them also have extensive experience working with the healthcare industry itself.

Q: Finally, J-Clinic is the fourth MIT collaboration with Community Jameel. How important has the MIT/Community Jameel partnership been over the last few years?

AC: It's been absolutely instrumental. Our students want to make an impact on the world. So when you look at the Poverty Action Lab ([J-PAL](#)), the Water and Food Systems Lab ([J-WAFS](#)) and the World Education Lab ([J-WEL](#)), these are the kinds of deep and important problems our students want to address through their research. [J-Clinic](#) fits perfectly into this environment.

These programs have been absolutely game-changing. I'm particularly excited about the opportunity for the programs to interconnect and amplify each other's impact over the coming years. It's a great opportunity for J-Clinic. We hope to partner with the other J-Labs in very specific ways in both the short and long term.

The partnership with Community Jameel has provided us with much-needed resources to facilitate this valuable work. But more importantly, it's enabled us to develop a research framework in which our students thrive, creating connectivity that can help to make a practical, real-world impact.





Guests at one of Saudi Arabia's best hotel chains will soon benefit from better experiences delivered as a result of a pioneering partnership between Lean Management consultants Four Principles and Mawaddah International Group.

Four Principles will work to integrate the Japanese 'Kaizen' philosophy of continuous improvement across Mawaddah's hotels. The introduction of the Lean culture is expected to cover everything from day-to-day operations though to Umrah visa services, resulting in improved efficiency, increased business performance and heightened guest experiences.

Seif Shieshakly, co-founder and managing partner of Four Principles, said: "In line with the government's Vision 2030 plan to boost the tourism industry in Saudi Arabia, the hospitality sector continues to witness tremendous growth aimed to cater to domestic and international tourists. We are proud to be part of supporting this growth through implementing continuous improvement projects with local hospitality establishments in order to deliver additional value to their customers."

Lean Management principles were first developed by Toyota Motor Corporation, a long-term partner of Abdul Latif Jameel. They are designed to boost performance, eliminate waste and maximize effective use of resources.



Seif Shieshakly, Four Principles Co-Founder and Managing Partner

Four Principles will work with Mawaddah, a hotel operator specializing in Hajj and Umrah services in both Makkah and Medina, to bring positive change to areas including sales strategy, procurement, warehousing and stock management, and hotel operations.

Karim Al-Sharif, CEO of Mawaddah International Group, said: "Our mission is to deliver a reliable and valued service to our guests during their stay at the country's holy sites. We look forward to engaging with Four Principles and are confident this shared effort will optimize our processes and therefore enhance our customers' satisfaction. This project represents an important step towards our vision to offer pilgrims a memorable religious experience through exceptional hospitality."

'Kaizen' hotel:

Four Principles to embed lean management across Mawaddah International Group

Almar Water Solutions helps tackle Kenyan water scarcity



Almar Water Solutions is awarded the contract to develop Kenya's first large-scale desalination plant. Opening Doors spoke to Carlos Cosin, Chief Executive Officer of Almar Water Solutions, about helping to tackle the country's looming water crisis and his ambitious plans for the future.

We're few countries face water and sanitation problems as intense as Kenya. Its problems stretch beyond simple water scarcity, with urbanization and poor sanitation compounding its difficulties. Indeed, 41% of Kenyans still rely on unimproved water sources, such as ponds, shallow wells and rivers and only 9 out of 55 public water service providers in Kenya provide continuous water supply¹.

Africa-focused water charity, [The Water Project](#), states that "Kenya's natural water resources do not provide an equitable delivery of water to the various regions of the country and the country's water basins do not reach an equitable area of the country²".

Rapid urbanization is identified as a key reason many Kenyans face water and sanitation problems. According to Water and Sanitation for the Urban Poor ([WSUP](#)), another leading water charity, a rapidly growing urban population has led to overcrowded informal settlements where residents have little access to water and sanitation services³.

Residents of Nairobi, for example, have faced water rationing for many years, while a dry spell early in 2018 created an acute water shortage in several Kenyan cities, including Nairobi, Mombasa, Kakamega, Kericho, and Migori⁴. At the time, residents of Mombasa who were struggling against an acute water shortage were reported to be buying 20 liters of water at an average of 0.30 US dollars⁵.

With 19 million Kenyans lacking access to safe water⁶, and a large population of women and children spending up to one-third of their day fetching water in the hot sun from the nearest fresh water source⁷, the need to find effective solutions has never been more pressing.

Organizations like the Abdul Latif Jameel World Water and Food Security Lab ([J-WAFS](#)) at the Massachusetts Institute of Technology (MIT) are working hard to overcome challenges such as these.

J-WAFS has already made a series of significant steps and continues to fund projects that could have a large-scale impact on water scarcity and pollution issues around the world. It provided two years of funding support to researchers looking to develop low-cost water filters using sapwood xylem, for example, potentially bringing safe and affordable drinking water to the world's lowest-income groups. It also funded research attempting to address issues around the scalability and cost of water desalination.

Cutting edge research of the kind undertaken at J-WAFS is a key part of the longer term solution. But in the shorter term, the challenges around water scarcity remain a day-to-day fact

of life for billions of people in developing countries around the world.

"The key element of human life is water," says Carlos Cosin, CEO of Almar Water Solutions, part of Abdul Latif Jameel Energy. "Without water there is no sustainability. There are many billions of people that don't have access to a reliable source of potable water. Because we often look at sustainability from the standpoint of developed countries, water is often not perceived as a big issue. But from the standpoint of developing countries, water is much more important than power."

The first steps to water success

It is this acknowledgment of water's critical role in global development that



¹ Kenya, Water.org, accessed July 2018

² Water in Crisis – Kenya, The Water Project, accessed July 2018

³ Kenya: Tackling challenges caused by rapid urbanisation, WSUP, accessed July 2018

⁴ Kenya's major towns facing water crisis as climate change bites, Xinhuanet, 19 February 2018

⁵ Kenya's major towns facing water crisis as climate change bites, Xinhuanet, 19 February 2018

⁶ Kenya, Water.org, accessed July 2018

⁷ Water in Crisis – Kenya, The Water Project, accessed July 2018



one of the best teams in the water sector. Winning our first major public project is a key milestone.”



Fady M Jameel, Deputy President & Vice Chairman, Abdul Latif Jameel, signs the contract for Mombasa’s first large scale desalination contract with the Honorable Ali Hassan Joho, Governor of Mombasa looks on.

led Abdul Latif Jameel Energy to form Almar Water Solutions 18 months ago. It is a decision that is already paying dividends, after it was recently awarded the contract to develop Kenya’s first large-scale desalination plant.

The development will have a capacity of 100,000m³ per day and supply water to Kenya’s second largest city, Mombasa.

Mombasa has an urban population of just over one million, almost a quarter of these live in informal settlements⁸, and roughly 66% of its low-income population has no access to safe and affordable water⁹.

Carlos says: “It’s not only a question of whether there is water available locally or not, but whether the little water that might be available is potable. Can people use it?”

“The situation then becomes even more complex, because the lack of water is the source of many of the

migratory movements in Africa. If water is not available, then people tend to move to where water is available. They relocate. If water was to be available, then there would be less migration of people from one place to another looking for water.” He adds: “This project in Mombasa is a very important step. Mombasa is a city port that doesn’t have desalination. Today, it is buying water from neighboring counties. It depends on those counties, and whether those counties have enough excess water to send to Mombasa.”

“There are periods of days when there are water blackouts, of non-supply of water, and this obviously has a huge effect on the population. This new plant, built by Almar Water Solutions, will not only address Mombasa’s water needs, but also reduce its reliance on water coming from third parties.”

It is also, says Mr Cosin, a significant project for Almar Water Solutions. He says: “Almar Water Solutions has

By combining skills and knowledge in both water solutions and renewable energies such as solar and wind power from their sister company FRV, Almar Water Solutions is in an enviable situation, with a clear and distinctive proposition. “We’re starting to see an expectation in the market that companies need to provide a joined-up service including wind, solar and water, and there are very few companies that have the expertise in both industries,” he says.

Strategic targets, ambitious goals

To achieve its ambitions, Almar Water Solutions is monitoring several key markets around the world. Alongside its project in Kenya, it is also active in South Africa, Chile, Peru, and Cyprus. It is looking at the most effective way to enter the Egyptian market, where desalination is increasingly being used to complement water supplied by the River Nile, and continues to focus on Saudi Arabia – the home market of Abdul Latif Jameel Energy and the largest desalination market in the Middle East.

However, Cosin insists: “We’re not just looking at desalination.” He adds: “The treatment of waste water, to bring it back to world standards, is usually a cheaper process than desalinating water from the ocean, which brings down costs for agricultural or industrial uses.”

Almar Water Solutions is also able to develop innovative solutions that combine its expertise and capabilities across different sectors.

“We believe the future is solar desalination. Our teams are working together to take this a step further. Eventually, as battery storage facilities continue to come down in price, we’ll be able to have a 24-hour supply of electricity from renewable energy.”

For now, though, there are more immediate concerns. “We need to structure the financing of the Mombasa project, which is going very well. We’ve had good discussions and we’re making real progress. We’re already starting the evaluation of the site, and we’ll start construction in the first half of 2019.”

“People will be watching very closely the execution of the Mombasa project, and how the delivery of the plant goes. Mombasa is also actively improving its water distribution network, which will mitigate some of the issues it’s been having – if you lose a major portion of water in a faulty pipeline that can become an issue in itself.

This is a major infrastructure development that will improve the lives of everyone in the city, a testament to the Government of

Mombasa for their vision and concern for their population. As they say, it is not the cost of water, but the cost of not having water.”

From bringing safe drinking water to more than a million people in Mombasa, through to pushing forward one of the most innovative energy companies in the world, Carlos Cosin has much to contemplate. But he remains upbeat for the future – both of Almar Water Solutions, and the populations it serves in Africa, the Middle East, and the rest of the world.

He says: “Almar Water Solutions has allowed Abdul Latif Jameel Energy to become a leader in the key sector that’s driving sustainability. The organization also funds the Abdul Latif Jameel Water and Food Security Lab (J-WAFS) at the Massachusetts Institute of Technology, so water is something that’s already front-of-mind in our organization. It’s the key element for both sustainability and population growth, especially in the Middle East.”



Carlos Cosin, Chief Executive Officer
Almar Water Solutions

Abdul Latif Jameel ENERGY



⁸ Mombasa: Supporting the utility to provide services to low-income communities, WSUP, accessed July 2018.
⁹ Mombasa: Supporting the utility to provide services to low-income communities, WSUP, accessed July 2018.



For more than 20 years, Toyota Turkey has led the Turkish automotive industry.

CEO Ali Haydar Bozkurt outlines his future vision

Since entering the Turkish market in 1998, Toyota and its partners Abdul Latif Jameel have consistently worked to achieve long-term growth in the automotive sector and to improve consumer service and choice through their joint 'guest first' philosophy. Now, as the automotive industry prepares for a once-in-a-generation technological shift away from diesel vehicles, the role of hybrid cars is becoming increasingly prominent. Opening Doors met with Toyota Turkey Marketing and Sales CEO Ali Haydar Bozkurt to learn more about this rapidly changing market.

Q: Abdul Latif Jameel and Toyota have been together in Turkey for over 20 years. How has Toyota's position in the market changed? And what makes you most excited for the next five years?

At Toyota Turkey, we sold 30,485 vehicles in the first 11 months of 2018. In November 2018, we sold 5,403 cars, topping the charts with a market share of 11.7% - a huge success. Now, we're gearing up for 2019, when we aim to use the strength of Toyota's new models to ensure we perform at the same level, despite the fluctuating economic conditions.

Q: The Turkish currency faced big fluctuations over the last 12 months. How did this situation affect the automotive market?

The rise in exchange rates has had a negative effect on sales, as have higher interest rates. Fluctuations in exchange rates have an even bigger negative effect as they prevent you from being able to plan with any kind of certainty. The sector is slowly starting to pick up momentum, however, from the Special Consumption Tax (SCT) and VAT incentives launched in early November. This is despite a generally weaker automotive market during the first 11 months of the year, when automobile

and light commercial vehicle sales fell 34% compared to the same period in 2017.

Q: According to the Turkish Electric and Hybrid Cars Platform, sales of hybrid cars rose by 61.5% in the first half of 2018. What is the major reason for this rise?

The Turkish market has experienced promising growth, thanks to growing consumer awareness of hybrid technology and the SCT incentive on hybrid models. We mobilized all our retailers in Turkey to promote interest in hybrid cars, and the rise in hybrid sales reflects this trend. At Toyota, we'll work continuously to ensure our people are well-informed on the environmental, economic and driving experience benefits of this technology.

In Europe generally, there is a growing shift towards hybrid cars. As an alternative to conventional petrol or diesel cars, hybrids can now offer a wider range of models. In Turkey, half the 2017 sales of the Toyota C-HR came from the hybrid model.

Q: What is the future of the hybrid market in Turkey?

The whole world has started to take measures against diesel cars. We'll see the effects of those measures in Turkey in a few years' time, but consumers are already changing their behaviour. For drivers covering less than 30,000-40,000 km per year, buying a diesel car is already a questionable personal economic decision. The difference today is that more and more people now realise this fact.

Different brands have announced they won't develop new diesel motors in the next three to five years, and my own view is that we'll see a significant decline in diesel automobile sales from 2020 onwards. That's when sales in hybrids –

and also electric vehicles (EV) will really start to increase.

Our major advantage is that Toyota has been developing hybrid technology for more than four decades and has been selling hybrids for many years already. There are approximately 13 million Toyota hybrid cars already in operation worldwide, with another 1.5 million added every year.



Ali Bozkurt with the Toyota C-HR Hybrid

Q: Toyota has the largest share of the hybrid market with the C-HR, RAV4 and Auris models. Why are Toyota hybrid cars so popular?

Apart from the unique hybrid driving experience, hybrid technology appears to be the most economical and ecological solution in the medium to long-term, without involving rent-a-battery costs and without requiring major nationwide charging stations or other similar infrastructures.

In the Turkish market, we have the broadest hybrid product line-up – including the Yaris Hybrid, RAV4 Hybrid, Prius, Auris Hybrid, Auris Touring Sports Hybrid, and Toyota C-HR Hybrid. This positions us both as pioneers and the leading hybrid brand in Turkey – just as we are in many other locations around the world. The rapid growth in the shift to hybrid technology will only increase from 2020, when every Toyota passenger car is offered in a hybrid version.



Abdul Latif Jameel Machinery reveals new partnership with Kanoo Machinery



Q: When will hybrid cars become a 'normal' preference of people in Turkey?

From 2021, much more sensitive regulations on emissions will be introduced around the world. I expect diesel sales to minimize as time goes by, and hybrids will be the first alternative when it comes to replacing diesel.

Already, 33% of drivers in Turkey name hybrids as their preferred choice for their next car. Only 2.5 years ago, that figure was just 18%. 76% of people now answer 'yes' to the question 'would you consider buying a hybrid car?', while only 3% claim they have never heard of hybrids – down from 10% just 2.5 years ago.

All of these are important developments, and Toyota is striving towards a target of more than half of its global sales coming from hybrid vehicles.

Q: Do you expect fuel prices will help to drive consumers towards hybrid cars in the next five years?

Yes, I think this is inevitable. Fuel prices in Turkey rose 22% between January 2018 and December 2018. Facing such increases, Turkish car users have focused on cheaper-to-run vehicles, including hybrids, which can reduce costs by up to 38% depending on the usage dynamics.

Q: How important are government incentives in encouraging people to buy hybrids?

The incentives recently introduced in Turkey, such as SCT, have given hybrid technology an official 'seal of approval', and so strengthens consumers' confidence around hybrid vehicles.

The SCT rate applicable for hybrid cars in Turkey is 45% to 60% for passenger cars with an electric motor above 50KW and with a motor cylinder volume of 1,600 cm³-1,800cm³, compared to the previous rate of 90%. The SCT rate for hybrid cars with an electric motor power of 100 KW, and with a motor cylinder volume of 2,000 cm³-2,500 cm³ is now 100%-110%, compared to 145% previously.

Hybrid cards now enjoy the same tax rate as Turkey's favourite vehicles, making them much more affordable. Hybrid cards manufactured in Turkey would be even more competitive.

Thanks to this adjustment, hybrid cars that were once considered to be the technology of the future are now increasingly taking their place in today's traffic.

Industrial users of **Teksan** generators will benefit from increased warranty and parts support after a new partnership between **Abdul Latif Jameel Machinery** and **Kanoo Machinery** was revealed at an event in Jeddah, Saudi Arabia.

Kanoo Machinery is a regional distributor of **Perkins Engines**, a diesel engine manufacturer that powers the Teksan generators supplied by Abdul Latif Jameel Machinery.

The new partnership expands and deepens the after-sales support available across Saudi Arabia, meeting rising public demand for safe, affordable and reliable power. M. Arif Chishti, Managing Director of Abdul Latif Jameel Machinery, said: **"A Kaizen approach to consistently improving the best-in-class customer support needs of our partners and customers is central to our work at Abdul Latif Jameel Machinery."**



Fergus Burke, Executive General Manager of Kanoo I&E, said: **"With a heritage that dates back more than a century, Yusuf Bin Ahmed Kanoo is one of the largest family-owned multinationals in the Middle East. It is proud to appoint Abdul Latif Jameel Machinery as an OEM dealer for Perkins diesel engines in Saudi Arabia."**

Abdul Latif Jameel Machinery is a leading provider of commercial vehicles across North Africa, and industrial and heavy equipment in Saudi Arabia. It sells, rents and provides parts, service and financing for global, industry-leading brands including Komatsu, Manitou and Teksan Generators.

Abdul Latif Jameel 
MACHINERY

Celebrating two decades of success and partnership in China for Abdul Latif Jameel Motors



Management, partners, customers and staff celebrate 20 years of success and partnership for Abdul Latif Jameel Motors in China in November 2018.

Abdul Latif Jameel Motors in China celebrated its twentieth anniversary of operations in the country at a special ceremony held in Chengdu on November 23, 2018. Since establishing a presence in 1998, Abdul Latif Jameel Motors has expanded from a single Toyota authorized service station, to a network of eight full-service branches for Toyota and Lexus brands, with cumulative new car sales reaching over 100,000 units at the end of 2018.



evaluation process of overall performance. The Qingdao FTMS branch has also been consistently rated as one of the top dealers for customer service (amongst the 545-strong network) in China.

Capitalizing on the insights and experience gained through more than 60 years of operations in the automotive sector across several countries, Abdul Latif Jameel Motors has developed a proposition with a strong 'Guest First' philosophy, and implemented this into the Chinese market to meet growing consumer expectations.

This has led to the company acquiring several high-profile industry awards, which were recognized as part of the anniversary celebrations.

Abdul Latif Jameel Motors' China operations have been awarded with the prestigious Toyota Gold and Silver awards – the highest-level awards that can be presented by FAW Toyota Motor Sales Co., Ltd. (FTMS) - based on a rigorous



From left to right: 涂诗俊 Johnson Tu, 邵春阳 Shao Chunyang, Irfan Yousef, (CFO Abdul Latif Jameel International), 董颖 Dorothy Dong, Fady M. Jameel, (Deputy President and Vice Chairman, Abdul Latif Jameel International); Hasan Al Alami, (Senior Managing Director, International Automotive Operations at Abdul Latif Jameel) George Wang, (Country General Manager, Abdul Latif Jameel Motors in China)



From left to right: Abdul Latif Jameel Motors China Associates pictured receiving their long service awards:
李强 Li Qiang, 李作发 Li Zuofa, 夏慧芳 Xia Huifang, 裴锡玉 Pei Xiyu, Hassan, 李蔓 Li Man, 张建庭 Zhang Jianting, 王恒 George Wang

During the event, several long-serving employees from the China-based operations were presented with Loyalty Service Awards, and recognized for their ongoing dedication and contributions. Speaking at the event, Fady M. Jameel stated:

customer service has secured success, which is recognized today with these esteemed awards. We would like to thank our partners, employees and most of all customers for their continued support on this 20-year journey; we look forward to continuing our relationship for many more years to come."

Abdul Latif Jameel Motors China also celebrated some of its most loyal customers, who talk about their experiences in this film:

"China has always been a fast-paced and exciting market, consistently maintaining its position as the largest automotive industry in the world since 2008.

It has also been a landscape in which Abdul Latif Jameel's commitment to exceptional



"We are proud to represent two of the world's most recognized passenger vehicle brands, Toyota and Lexus, in the world's biggest market, China.

Our commitment to adding value, industry experience, and deep roots in the country has seen us recognized as an automotive partner of choice."

George Wang (王恒),
Country General Manager Abdul Latif Jameel China

Abdul Latif Jameel Motors has eight branches in China: Chengdu FTMS, Chengdu GTMC and Leshan FTMS in Sichuan Province; Yinchuan FTMS in Ningxia Province; Wuhan FTMS and Wuhan Lexus in Hubei Province; and Qingdao FTMS and Laizhou FTMS in Shandong Province.

Six of the company's Associates claimed national awards from Toyota, including a clean sweep of the top three prizes in the FTMS Insurance and Finance category.

Abdul Latif Jameel Motors China award winners

FTMS Insurance and Finance



1st

Ding Xing
Qingdao FTMS



2nd

Chang Yong
Chengdu FTMS



3rd

Chen Bing
Qingdao FTMS

FTMS Body and Paint Evaluating and Pricing



1st

Zhou Kai
Chengdu FTMS



1st

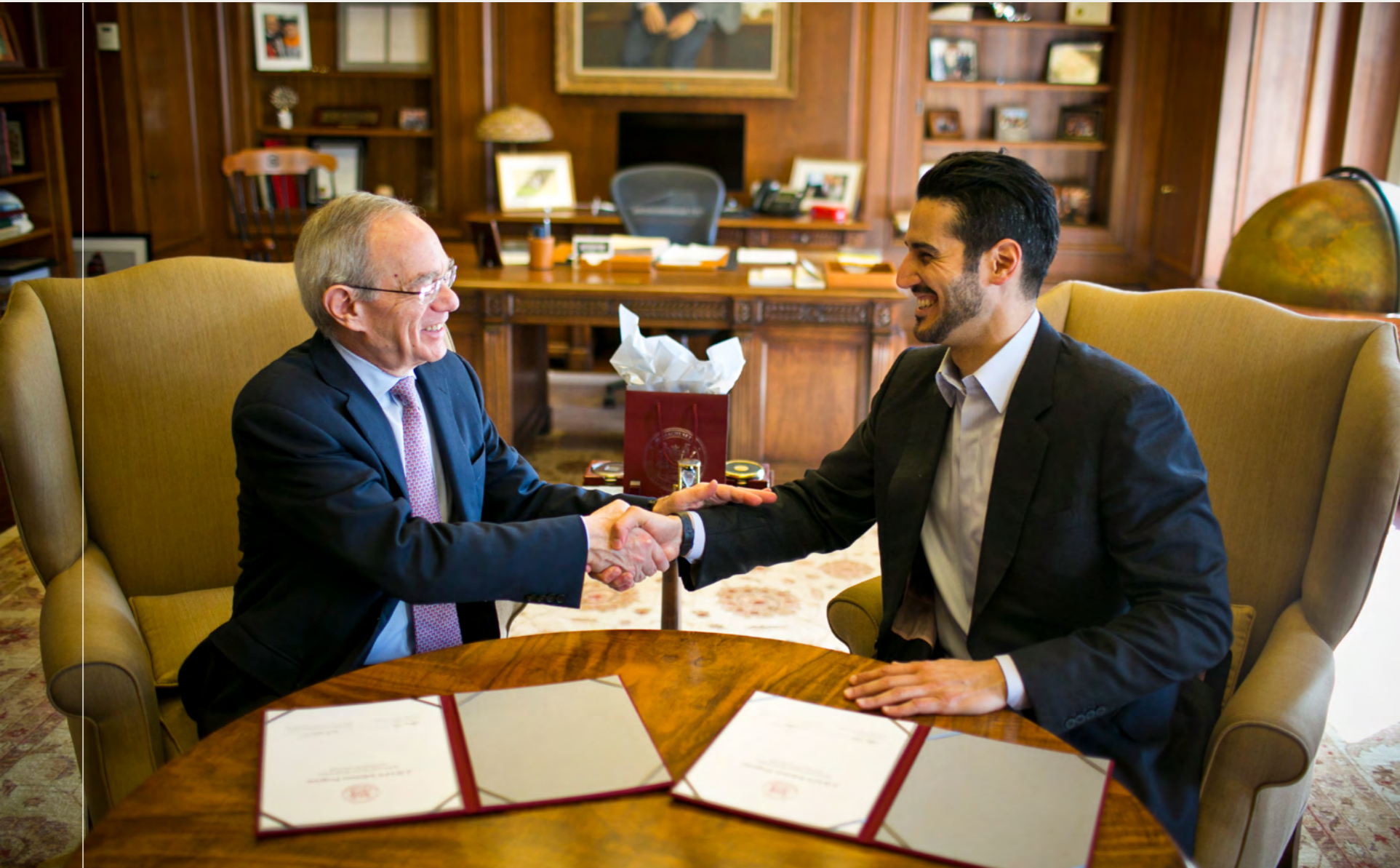
Zhang Kaiqiang
Qingdao FTMS

FTMS Trainer Skill



3rd

Jiang Weijie
Chengdu FTMS



MIT President L. Rafael Reif and Hassan M. Jameel, President of Community Jameel Saudi Arabia, signing the agreement for the J-WAFS Solutions commercialization program in May 2015, one year after J-WAFS was inaugurated.

J-WAFS achievements – a proud history of progress

Almost five years on from its formation at the Massachusetts Institute of Technology (MIT), the global reach and enormous potential of the research supported by the Abdul Latif Jameel Water and Food Systems Lab (J-WAFS) grants is becoming ever clearer.

Nearly 60 MIT Principal Investigators (PI) from 19 MIT departments, labs, and centers; 58 funded doctoral, masters, and undergraduate students; 35 post-docs, and 15 additional research staff are among those involved in the skilled and diverse research community fuelled by J-WAFS' funding. At MIT, the J-WAFS seed grant program is the most significant funding source for water and food research. This support provides the MIT research community with essential resources as they strive to tackle some of humankind's most severe challenges.

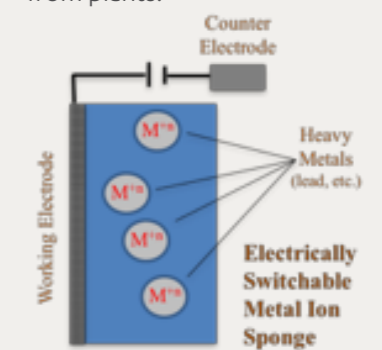
Their research, it is hoped, will deliver significant impacts on water and food safety and supply, despite the increasing demands on our water and food systems caused by climate change and consumption. J-WAFS funding also extends beyond early "seed" research grants. Their J-WAFS Solutions Program supports the commercialization of these and other innovative technologies and approaches.

projects first funded in 2016 that have recently reached their conclusions.

Active materials for heavy metal extraction from water

*PI: Timothy Swager, John D. MacArthur
Professor of Chemistry, Department of Chemistry*

By developing scalable designs for polymer-based membranes that can remove toxins, such as lead and mercury, from water at the molecular level, principal investigator Timothy Swager hopes to develop a technology that could transform the water industry. The membranes work by manipulating electrical charges to catch and release toxic metal ions. So far, Prof. Swager's team has built and validated a prototype filter that can successfully remove both metals, as well as show how it could be used at an industrial scale. The team has already secured financial support from the MIT Energy Initiative to build on its successful research results. This follow-on grant is supporting the application of the membrane production process toward the creation of high-performance fuel cells. Prof. Swager is also exploring how the same filtration strategy could be used to extract specific molecules from plants.



With requests for proposals for the 2019 J-WAFS initial seed grants already distributed, Opening Doors looks back at the success of some of the initial

Bacterial viruses as pathogen control agents in aquaculture systems

PI: Martin Polz, Professor, Department of Civil and Environmental Engineering

One of the many challenges faced by aquaculture farms is population decline due to bacterial infection. Oysters and shellfish are particularly vulnerable to infection, and they are often treated with large doses of antibiotics.

However, this strategy is not always effective at controlling disease. In fact, the use of antibiotics in aquaculture is so widespread that they are becoming less effective over time. Instead, viruses that are able to target specific harmful bacteria could perhaps serve as a sustainable alternative. Prof. Polz and his research team is attempting to create effective ‘virus cocktails’ that can suppress the growth of harmful bacteria. They have already characterized and mapped virus/bacteria interactions to identify combinations of viruses that can stay ahead of bacteria’s ability to evolve resistance, and has received follow-up funding from the Simons Foundation to explore this research into virus-bacteria interaction further.



Real-time, on-site detection of foodborne pathogens by engineered bacteriophage integrated with

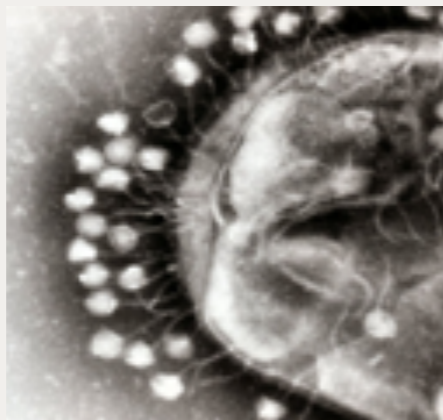
microfluidic sample preparation platforms

PIs: Jongyoon Han, Professor, Department of Electrical Engineering and Computer Science and Department of Biological Engineering; Timothy Lu, Associate Professor, Department of Electrical Engineering and Computer Science and Department of Biological Engineering

Detecting foodborne pathogens in food production and processing facilities is a major issue.

Early detection allows companies and facilities to more effectively control outbreaks of foodborne disease, which reduces cost as well as the adverse health impacts that occur when contaminated food reaches the marketplace. Using their expertise in microfluidics, Prof. Han and Prof. Lu built a high-throughput device that separates and concentrates cells in food samples.

This is combined with a virus detection system that uses viruses engineered to specifically infect bacteria such as Salmonella and Listeria, and cause them to light up – quickly revealing the level of contamination present. Prof. Han’s group is now assessing whether the technology could be used for water safety testing.



Estimating the benefits to strengthening water markets

PI: Christopher Knittel, George P. Schultz Professor, Sloan School of Management

As water scarcity becomes an increasingly pressing challenge, how can economic policy promote more efficient water use in urban and agricultural contexts?

By compiling the first known complete data set capturing surface water allocations in California from 1980 to the present, Prof. Knittel’s team is painting a more accurate picture of water use in order to understand and quantify the economic and environmental benefits of water markets, e.g. selling, purchasing, and trading water resources.

Prof. Knittel has now established successful relationships with the U.S. Department of Water Resources, the State Water Resources Control Board, and several brokerage and consulting firms that are involved in water pricing – each of which is invested in future research results.

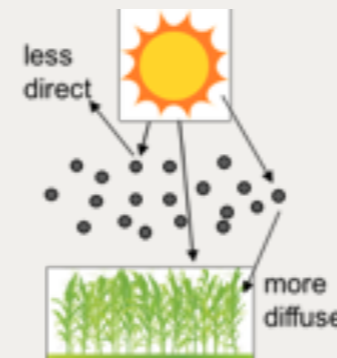


Air pollution impacts on global crop yields

PI: Colette Heald, Associate Professor, Department of Civil and Environmental Engineering

How does air pollution affect crop production? While much research has been done on the effect of ozone on crop health and yield, little research exists on the effect of particulate matter.

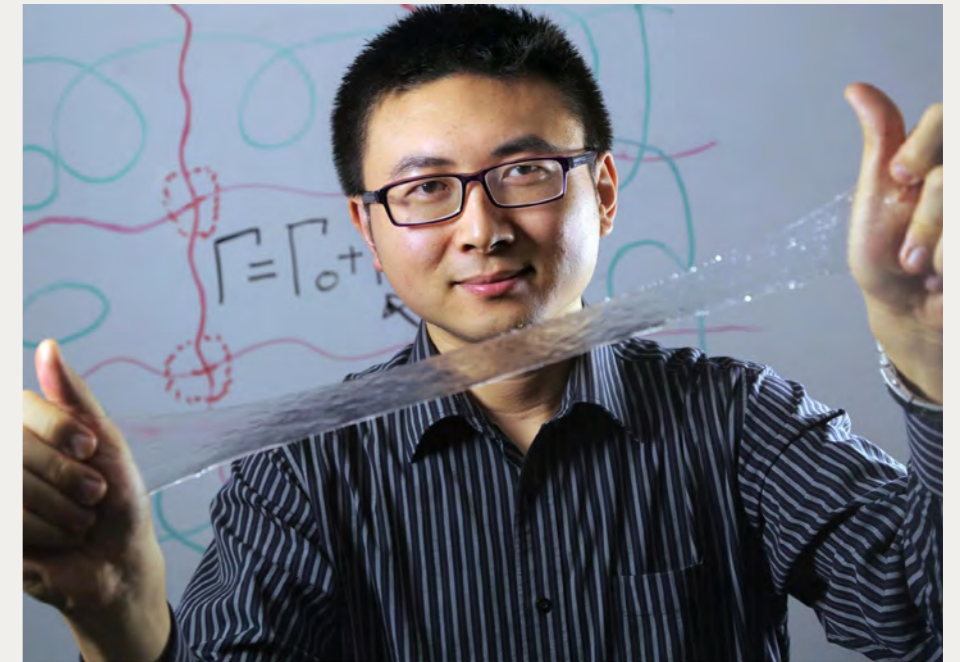
Professor Colette Heald of the Department of Civil and Environmental Engineering noticed this research gap. She used a 2016 J-WAFS seed grant to examine the effects airborne particulate matter on crop yield. Combining crop production and atmospheric chemical transport models, her team created the first comprehensive estimate of the food production impacts of air pollution. The models demonstrated that, while ozone damages plants’ leaves, particulate matter can diffuse solar radiation and thereby increase the sunlight available to plants, offsetting some projected ozone damage. However, the research results also revealed a great degree of variability, demonstrating the uncertainty of the overall impact of particulate matter on global crop yields.



J-WAFS: A catalyst for solutions-oriented research

In 2017, seven more research projects received a total of US\$ 1.4m in J-WAFS seed grant funding.

Among them is an attempt by Prof.



Xuanhe Zhao, Noyce Career Development Prof., Dept. of Mechanical Engineering, MIT

Xuanhe Zhao and Prof. John Lienhard to develop a chemical-free, vibration-based membrane cleaning technology that could dramatically improve the efficiency – and reduce the costs – of reverse osmosis, the most widely used desalination process in the world. “Fresh water is fundamental to our existence,” says Prof. Zhao, “but ensuring a stable, sustainable supply is a huge challenge – particularly in water-scarce areas like the Middle East and North Africa.” The pair hope their research can reduce the maintenance and operating costs associated with reverse osmosis, which in turn should also lower the cost of water to consumers.

Through three Rasikbhai L. Meswani Fellowship for Water Solutions awards and two additional J-WAFS Graduate Student Fellowship Program awards, since 2017, five MIT doctoral students have received research support for projects that could have significant impact on future water supply management.

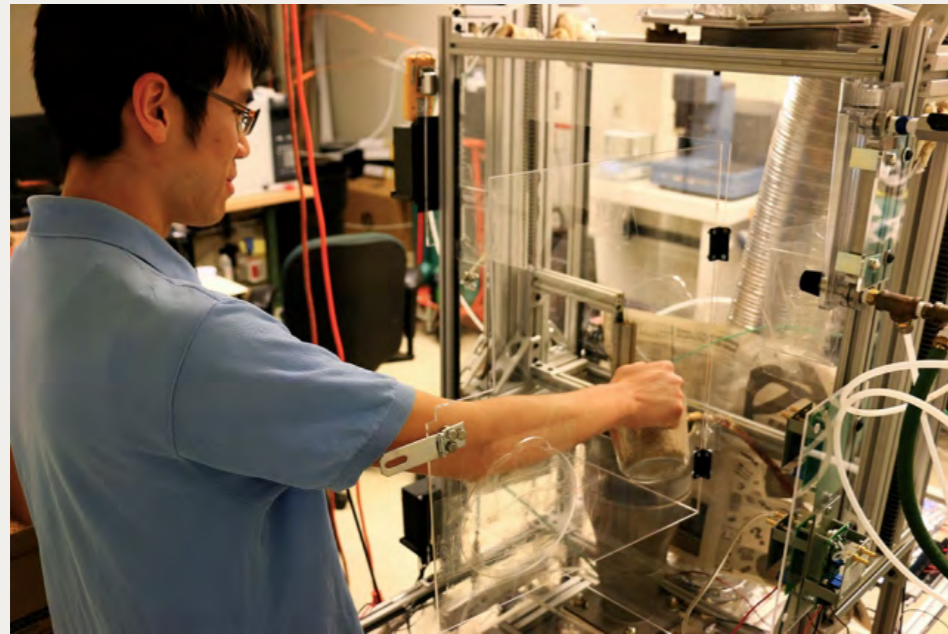
They are:

- Providing a system of analysis for the design of engineering infrastructure that can minimize the supply planning uncertainties – including rainfall, population and climate change – across Saudi Arabia, Kenya and Australia (Sarah Fletcher, 2017 fellow).
- Building the necessary knowledge to support nanotechnology development that could ultimately deliver more efficient, sustainable and cost-effective desalination (Omar Labban, 2017 fellow).
- Developing genetically-engineered microbes that could cheaply and effectively be used as water quality sensors (Tzu-Chieh Tang, 2017 fellow).
- Designing an affordable, easy-to-use water filter made of xylem tissue in wood that can remove contaminants from marginal water supplies in rural areas and vulnerable communities (Kritika Ramchander, 2018 fellow)
- Examining how transnational

water operators' partnerships (WOPs) could provide an alternative approach for strengthening public water and sanitation utilities in developing countries ([Andrea Karin Beck, 2018 fellow](#)).

Research in progress

The crop of J-WAFS funded research in 2018 includes a project led by Prof. [Ahmed Ghoniem](#) and doctoral student [Kevin Kung](#).

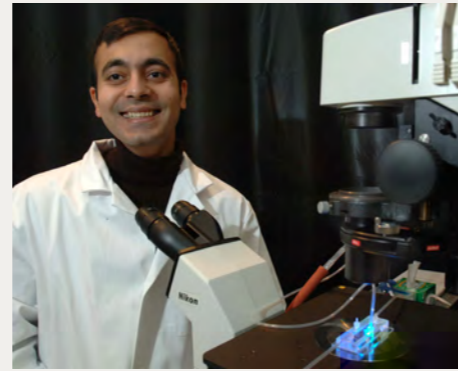


Kevin Kung, a TATA Fellow and PhD candidate in biological engineering, feeds rice husks into the torrefaction reactor in his lab at MIT. A thermochemical process will convert the biomass to a more energy-dense form, making it easier to transport and use as fuel. Photo: Ben Miller, MIT

The pair are working on a project to refine new biomass processing technology to produce fertilizer on a small scale in rural communities, using mostly local resources, labor, and agricultural waste. "The funding from J-WAFS is enabling us to take the essential first steps to start making in-roads into this market and hopefully turn our vision into a reality," said Prof. Ghoniem. "We're confident,

too, that working with J-WAFS can help us not only in terms of the technology development, but also in exploring diversification and the commercialization of the technology."

Another project involves Prof. [Rohit Karnik](#) and Senior Lecturer [Amy Smith](#), who are leading a group of researchers hoping to harness the natural qualities of xylem wood to provide safe,



Rohit Karnik, Associate Professor of Mechanical Engineering at MIT

ideas can result in advances that both lay important groundwork for future research and lead to technologies that can be scaled up to help address some of the world's biggest challenges.

Additional details about these and other J-WAFS-funded projects are available on the J-WAFS [website](#).

affordable drinking water to low-income groups. "We aim to make use of a natural water-filtration technology that is quite different from those already on the market, with the hope of improving the supply of safe water to rural and low-income communities," says Prof. Karnik.

This catalogue of J-WAFS projects shows how research support for early-stage



Left to right: Hon. Fatma Awale – Ministry of Water of Mombasa County; William K. Kingi – Deputy Governor of Mombasa County; H.E. Hassan Ali Joho – Governor of Mombasa County; Fady M. Jameel, Deputy President and Vice Chairman, Abdul Latif Jameel; Carlos Cosin, CEO Almar Water Solutions; and Daniel Fernandez – Business Development Manager Eastern and Southern Africa at Acciona.

A water crisis solved: Over 1 million people to benefit from Kenya's first large-scale desalination plant

Almar Water Solutions has been awarded a contract to develop Kenya's first large-scale desalination plant. The project will be located in the North Mainland zone in the county of Mombasa and will have a capacity of 100,000 cubic meters per day, supplying drinking water to more than one million people. The plant will be managed and operated for 25 years until it is handed over.

The development of this desalination project will alleviate Mombasa County's water crisis, which has caused interruptions in the drinking water supply for several years.

Cosin, CEO of Almar Water Solutions; and Fady Mohamed Jameel, Deputy President and Vice Chairman of Abdul Latif Jameel.

Mr Cosin expressed his thanks to the Mombasa Government for placing its trust in Almar Water Solutions, which will develop this pioneering project and supervising the entire process until the project is transferred to the county.

Sub-Saharan Africa poses significant challenges in the water industry due to its population growth, advances in economic development, and the severe effects of climate change. Desalination is an unconventional source of water that will help to alleviate water stress in the region and will contribute to the progress of its community.



Fady M. Jameel, Deputy President & Vice Chairman, Abdul Latif Jameel, and H.E. Hassan Ali Joho, Governor of Mombasa County, shake hands following the signing of the contract award

Almar Water Solutions has been present in the region for some time and is particularly interested in developing innovative technological projects to supply both the municipal and industrial sectors.

Abdul Latif Jameel catches power from the breeze in 'Wind Town', Hokkaido

Abdul Latif Jameel General Trading, Japan, is a progressive developer of clean energy and actively seeks to expand our renewable energy operations in the country.

In November 2018, the team established its first two 'micro' wind turbines at Cape Erimo – Japan's so-called 'Wind Town' – on the south-east corner Hokkaido, the country's northernmost major island. This is the first in a series of pilot wind energy projects, planned across Japan, working in partnership [Abdul Latif Jameel Energy](#).

With a capacity of 20 KW each, these new installations will bring the total micro-turbines to be delivered through this project to 20: 6 in Hokkaido, 12 units

in Aomori and 2 in Akita. Their combined power will generate a total of 400 KW into the national grid: enough to supply energy to around 400 typical homes and saving around 1,000 tons of CO₂ annually through 20 year agreements with regional power companies [Hokkaido Electric Power Company](#) and [Tohoku Electric Power Co., Inc.](#) respectively.

The local team (picture on right) research wind and solar potential, identifying economically viable sites, then design, construct and operate renewable energy solutions. They seek to rapidly develop and scale this wind power project: "In the future, we will build 50 or more units of similar small-scale wind turbines, and from 2019 some much larger capacity units. This will be in partnership with Abdul Latif Jameel Energy's renewables business 'FRV', and contribute positively to extending the clean energy business across

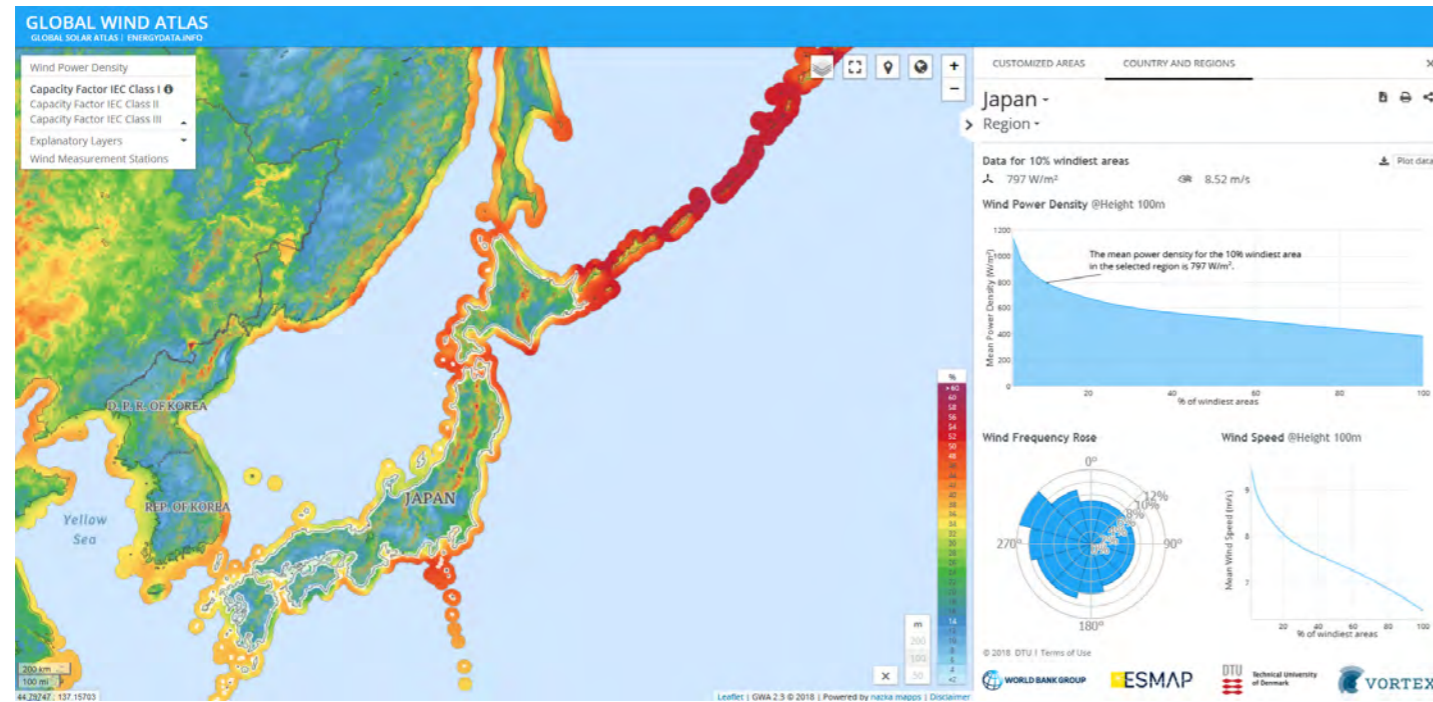
Japan" commented Shigeki Enami, President and CEO, Abdul Latif Jameel General Trading.

The micro wind turbines project is successful as it remains sensitive to environmental and local community considerations. Mr Enami added: **"At each stage of the site assessment and development, we frequently consult and look to develop a close relationship with local communities."**

The significant wind-power potential across Hokkaido and Tohoku is a valuable natural resource and presents opportunities to develop the local economy and cultivate Japan's green-energy sector. Erimo is one of the strong wind potential areas in Japan. In 'Wind Town' the wind blows at over 10 meters per minute for more than 260 days a year.



Left-to-right: Satoru Nakamura, Senior Managing Officer, 中村哲 専務執行役員, Shigeki Enami, President & CEO, 榎並滋喜 代表取締役社長, & Gen Igari, Manager, 猪狩元 課長, in front of one of the two new wind turbines at Cape Erimo, Hokkaido



Looking further forward, the team plans to reach an output of over 50 MW by 2022, and double this to 100 MW by 2027.

In Japan's electricity sector wind power today only generates a small proportion of the country's electricity. As of 2015, Japan had a total installed capacity of 3,167 MW. Government targets for wind power deployment are relatively low when compared to other nations, at 1.7% of electricity production by 2030. [It has been estimated that Japan has the potential for 144 GW of onshore wind and 608 GW of offshore wind capacity.

Cape Erimo is well known in Japan for Shinichi Mori's enka song Erimo Misaki. Located at the southern-most tip of the Hidaka mountain range, and said to be the geological 'backbone' of Hokkaido, the Cape is known for its magnificent natural scenery, as well as being famous as a harbor seal habitat.

Well-known sightseeing spots at Cape Erimo include its white lighthouse and the Wind Museum Kaze no Yakata (House of Wind).



Wind Museum: Kaze no Yakata, at Erimo-cho, Horozumi-gun



Left to right: Seif Shieshakly, Co-Founder & Managing Partner, Four Principles, Mr. Faisal Al-Nassar, COO & CFO, Dr. Sulaiman Al Habib Medical Group, and Patrick Wiebusch, Co-Founder & Managing Partner, Four Principles

Pioneers revealed: Winners of inaugural Four Principles Kaizen Awards named at Riyadh ceremony

The first ever Lean Management awards in the Middle East enjoyed a glittering launch in December.

The Four Principles Kaizen Awards in Riyadh recognized five organizations for delivering substantial improvements in business efficiency, agility and profitability.

The ceremony at Riyadh's Four Seasons Hotel also featured a presentation by global Lean management expert Takao Sakai, the best-selling author of *The Secrets Behind Toyota's Success* and a great-nephew of Dr. Kotaro Honda, one of the originators of the Kaizen philosophy.

Hassan Jameel, Deputy President and Vice Chairman of Abdul Latif Jameel, said: **"We are delighted by the reaction to the inaugural Four Principles Awards – including the superb quality of the entries we received. Kaizen or Lean management is a philosophy we learned and embraced from our long-term partner Toyota,**

mirroring the long-lasting Saudi Arabia-Japan relationship, and it has underpinned our approach and success for many years. At a time when the private sector has a vital role in the delivery of Vision 2030, we are delighted to be encouraging Lean management in Saudi Arabia."

Established in 2010, Four Principles, works with businesses across Saudi Arabia and the wider MENAT region to drive better performance through the adoption of Kaizen principles in line with the aims of Saudi Vision 2030.

Entrants were asked to share their Lean Management success stories in one of two categories, 'Continuous Improvement Process' or 'Lean Transformation'.

All entries had to include details such as the challenges faced by the company, the objective, cost and duration of the project, the number of employees involved, and the then demonstrate the resulting improvements in terms of quality,

lead times, costs and sustainability. Prizes on offer included a sector-tailored five-day trip to Japan for three company executives, to see at first-hand how Lean practices are implemented in Japan's most pioneering firms.

Four Principles Kaizen Awards winners

Lean Ambassadors Award:
alRomansiah

Lean Transformation Award:
Dr. Sulaiman Al Habib Medical Group

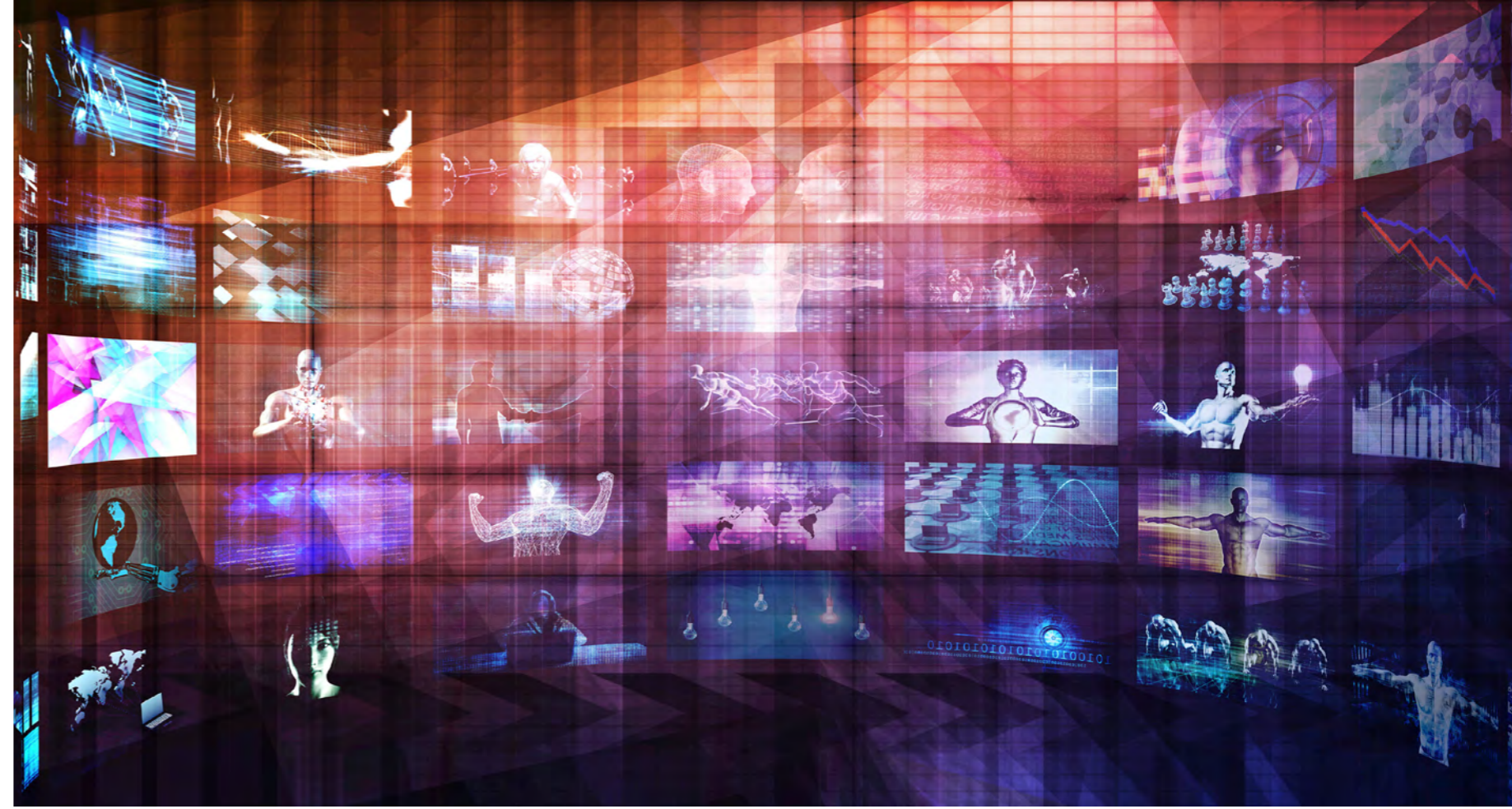
Lean Transformation Runner-up:
Bupa Arabia

Continuous Improvement Award:
Nesma Embroidery (subsidiary of Nesma Holding)

Continuous Improvement Runner-up:
Cold Stores Group of Saudi Arabia (CGS)

Creative. Communication Design. Data

New creative agency set to reshape region's media sector through AI



After more than 20 years of success in the Middle East's advertising and media industries with its DriveDentsu agency, **Abdul Latif Jameel** has revealed ambitious plans to develop a new, technology-driven creative agency for the region, focused on intensive channel planning, content creation and data-led distribution and analysis.



Delphys Middle East (**DelphysME**) is the result of a pioneering partnership between **Abdul Latif Jameel** and international Japanese creative agency **Delphys**.



DelphysME headquarters in Dubai's Media City District

Delphys is part of the Toyota Group, although it operates totally independently.

Delphys ME is led by CEO Noriyuki Higashi, together with Ramzi Abou Dargham (COO), Michel Zouein (Executive Creative Director) and Habib Saba (Managing Director – Business Development).



Noriyuki Higashi, CEO DelphysME

The team is responsible for driving forward a business that will adopt a data-based approach across all activities, including its own artificial intelligence engine called 'Hiro', which will help to provide clients with advanced insights and strategic guidance.

Learning from experience

DelphysME replaces DriveDentsu, which was formed in 2005 after Drive Communications – Abdul Latif Jameel's original media and advertising business established in 1997 – joined the global network of Japanese creative agency, Dentsu.

| | | | |
|---|---|---|---|
|  |  |  |  |
| TOKYO | DUBAI | JEDDAH | RIYADH |
| Global hub Knowledge transfer Product insight Technology | Regional hub Creativity Data & innovation Multinational clients | KSA hub High quality CS Local insights Innovative local creativity | Locally focused High quality CS Local insights Innovative local creativity |



Delphys office Tokyo

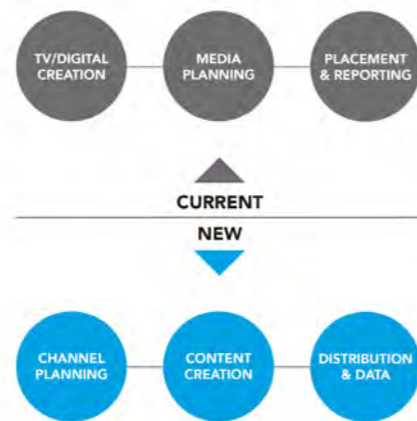
Ramzi Abou Dargham was managing director at DriveDentsu for nine years until its closure in early 2018. Now COO of DelphysME, he is ideally positioned to draw on his previous experience to help lead a thriving new agency to serve the entire MENA region.



Ramzi Abou Dargham, COO DelphysME

“Drive adopted a traditional agency model, after originally being established as an in-house agency,” he says. “But over the past 10 years, the advance of technology and digital media has had an increasing impact on the way marketers see their businesses.

By 2015, it had become clear that the Drive’s business model was no longer sustainable. At the same time, Dentsu’s global strategy was also changing. We decided a whole new approach was needed that recognized technology’s pivotal role in achieving clients’ advertising and marketing objectives.”



The move away from DriveDentsu happened gradually over the course of 2016, and 2017. By early this year, Ramzi and the team of around 100 people were ready to formally join forces with Delphys’ nascent Middle East operations. “We saw an opportunity to merge the two companies into a new

entity and this is where DelphysME – and its new direction – was born,” he explains.

“Despite of the current surface uncertainty in the economic climate, the Middle East region still has lot of future potential due to its large, young and tech savvy population. Also the governments are putting lot of efforts in transformational programs that gives a very interesting potential, making it an excellent place for Delphys to invest future growth” says Higashi-san, adding “and with Abdul Latif Jameel being one of the world’s the leading distributors of Toyota globally as a trusted partner of TMC for over 60 years, and Delphys a subsidiary of Toyota, the synergies in culture and business approach makes a lot of sense in this partnership.”

In terms of bringing added value to clients in the region, Higashi-san comments that “Our global knowledge and skill in integration, content, digital and personalized, one-to-one marketing puts DelphysME in a very unique position to add value to brands and brings a much needed answer the ever changing industry landscape of the region.”

Delphys

Established in
1949
Originally named
Namboku-sha

Renamed in
2000
as Delphys

Over
500
associates

No. of Offices
3
Tokyo, Nagoya, Osaka

Overseas offices
6
Beijing, Bangkok,
Cuangzhou, Singapore,
Jakarta, Dubai, Jeddah,
Riyadh

Over the last few years, Delphys has completed its own transformation, switching towards tech, digital and experiential marketing and away from the traditional mass marketing mix of TV, radio and out-of-home advertising.

It is a move that has already paid dividends, with current clients including Panasonic, Canon, Japan Airlines, and a number of major Japanese banks.

Now Ramzi hopes to replicate that success for DelphysME.



Ramzi says: “Delphys ME brings together experiential, digital and technology in a way that makes us unique to other creative agencies. We’re focused on three areas: communication design, where we work with clients to find a solution for their business or marketing problems; content creation, where we identify a problem and create content for it; and distribution and data, which helps us to serve our content based on audience behaviors, preferences, historical activity, wants and desires.

“The previous business model was basically using broadcast, scattergun media – such as TV or radio – where everybody gets the same message at the same time.

What we do now is identify the customer, their unique personal behavior and – importantly – motivations, and what they want. Then we create content specifically designed for them and follow that content across different channels, testing in detail and really engaging with customers to improve the relationship between them and the advertiser.”

Harnessing a data revolution
Using cutting edge technology and big data to meet its clients advertising objectives is at the very heart of DelphysME’s proposition.

It is even developing its own state-of-the-art artificial intelligence (AI) engine called ‘Hiro’ to inform media decisions, based on real-world factors, observed behaviors and consumer data.



“We can feed Hiro data while simultaneously setting KPIs to guide its decision-making. An example might be something simple, like what impact the weather has on people’s advertising behaviors. How does a rainy day affect what kind of videos people watch on YouTube, and how long they watch them for? This can really guide our creatives in a different way and it’s the main objective of Hiro. It’s still in the initial stages, but we think Hiro can help us become a leader in the region’s advertising sector.”



Responding to MENA's unique demographics

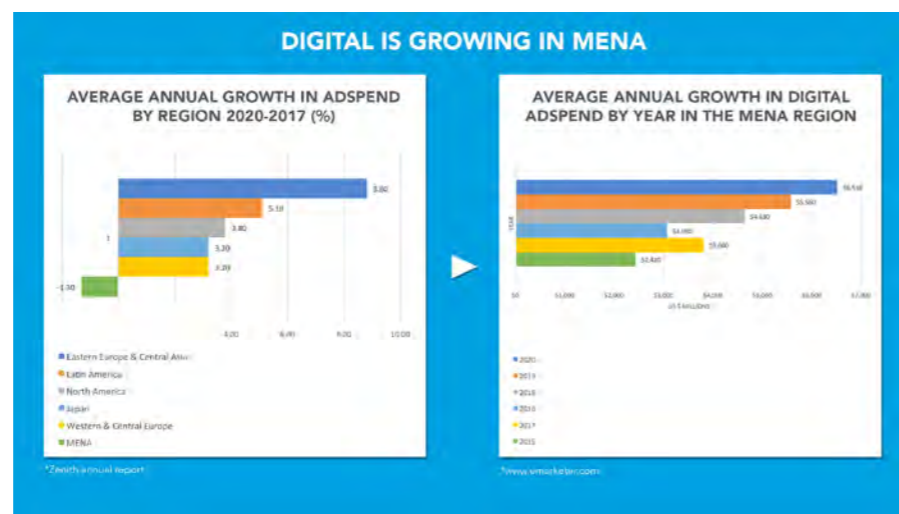
With the ability to create and track exceptional creative across all digital channels, from simple web pages through to a TV series or in-app promotions with companies like Uber, Ramzi is confident of success for DelphysME. However, he is also a realist – and he is quick to recognize the complex environment in which this exciting new agency will operate.

There are undoubtedly challenges in the Middle East as there are in other global markets, such as diminishing budgets for advertising and marketing over the next three or four years. Nevertheless, Ramzi is optimistic for the future.

“We have a young population that is hugely tech-savvy. So while traditional advertising spending is falling, the demographics of the region mean digital and mobile spending is increasing. This is where we see our advantage over traditional agency models that still focus on the mass media,” he says.

Future ambitions

Ramzi is equally candid about his ambitions for DelphysME.



“Through technology and our new business model, we can serve the entire Middle East region from Dubai. It’s not about serving up different content to different markets, it’s about tailoring our clients’ proposition to different audiences, regardless of where they are in the UAE or Saudi Arabia or elsewhere in the region.”

It is a problem he likens to advertisers operating in the United States. Instead of looking at individual cities or states, such as New York or California, he points to advertisers targeting specific customer profiles.

“They may target a specific cultural group, such as Asian Americans, a specific age group, or an interest group, such as car-owners above the age of 40. With the depth of data we now have at our fingertips, you can segment and target your audience in any number of different ways. We will apply this same strategy to the Middle East,” he says.

As the overlap between the real world and the digital world grows ever stronger across the region and in almost every aspect of our lives, DelphysME is helping to propel the Middle East’s creative sector towards a dynamic, data-driven future.



Fady M. Jameel, Deputy President and Vice Chairman, Abdul Latif Jameel, HE Eng. Ibrahim Al-Omar, Governor of SAGIA, and Deborah Carlson - Board member at SICPA

New joint venture to provide cutting-edge track and trace solutions across Saudi Arabia

SICPA-Jameel, a new joint venture between Swiss company **SICPA Finance** and Abdul Latif Jameel, was one of four businesses to receive investment licenses from the Saudi Arabian General Investment Authority (**SAGIA**) at a ceremony in Bern, Switzerland.

HE Eng. Ibrahim Al-Omar, SAGIA Governor, also commented: **“These excellent developments... underline the importance of building strong economic partnerships. We want to use these partnerships to help illuminate and enable investment opportunities for companies and investors across a number of promising sectors, while also helping to realize the Kingdom’s Vision 2030, economic diversification and a new era for Saudi Arabia.”**

There are now 94 Swiss projects invested in Saudi Arabia. Mr Al-Omar added: **“We very much welcome the strong and valuable Swiss presence in Saudi Arabia and we look forward to celebrating 100 Swiss investments soon.”**

The enterprise will deliver information and data services across Saudi Arabia, where it will provide ‘track and trace solutions’ designed to secure the production, import, export and trade of sensitive goods such as pharmaceuticals, food, money, identity documents and excisable goods.

Fady M. Jameel, Deputy President and Vice Chairman, Abdul Latif Jameel, said: **“Abdul Latif Jameel is proud to be the investment partner of choice for this venture with SICPA Finance and bring this cutting-edge ‘track and trace solutions’ technology to businesses and consumers in Saudi Arabia.”**





IEA report confirms bright future for solar PV installations

In its new World Energy Outlook report, the International Energy Agency backs solar PV to become a major force in power generation

Solar photovoltaic installations look set to be a key driver of a reshaped energy market. Opening Doors looks at why this change is occurring and what its implications are likely to be.

Over the next 20 years, the global energy landscape faces major and long-lasting transformation. Reliance on traditional hydrocarbon fuels such as coal, oil and gas looks set to diminish by 2040. In 2017, it accounted for 30% of global power generation capacity in GW. By 2040, the International Energy Agency (IEA) believes it could account for as little as just 8%¹.

At the same time, renewable energy will continue to secure an ever-greater market share. Although hydro and wind power are expected to be significant drivers of that growth, the major force will be solar photovoltaic (PV) power, which could account for as much as 29% of global power generation capacity in GW by 2040².

According to the IEA's 2018 World Energy Outlook, "the increasing competitiveness of solar PV pushes its installed capacity beyond that of wind before 2025, past hydropower around 2030 and past coal before 2040. The majority of this is utility-scale, although investment in distributed solar PV by households and businesses plays a strong supporting role³."

Why is this happening? The IEA highlights signs of strain in three key pillars of the current energy system:

- affordability, where oil

prices are rising and "hard-earned reforms to fossil fuel consumption subsidies are under threat in some countries"

- reliability, where an eighth of the global population lacks access to electricity and risks persist in oil and gas supplies
- sustainability, where carbon dioxide emissions continue to rise despite the findings of the global scientific industry on the stark effects and implications of man-made climate change⁴.

The advances of battery storage, covered on pages **01-04** of this issue of Opening Doors, and the increasing effectiveness and efficiency of solar PV as technology develops over the next two decades, strengthens the solar PV position even further.

In Germany (US\$ 1,090 kW), India (US\$ 1,125 kW) and China (US\$ 1,130 kW), upfront capital costs are the lowest in the world, while the IEA believes "new solar PV is well placed to out compete new coal almost everywhere⁵."

Among the consequences of this democratization and growing momentum to move to green energy is a net benefit of 18 million new jobs, according to the International Labour Organization⁶. Further, industry experts predict that any benefit arising from a wholesale switch of focus to solar PV installations would be particularly felt across the Middle East.

Wim Alen, General Secretary of the Middle East Solar Industry Association, said: "The adoption of solar will lead to significant reduction in the region's carbon footprint while saving natural gas for future or other use⁷."



"Over 70% of global energy investments will be government-driven and as such the message is clear – the world's energy destiny lies with decisions and policies made by governments."

Dr Fatih Birol
Executive Director,
International Energy
Authority

Through its wholly-owned subsidiary Fotowatio Renewable Ventures (FRV), Abdul Latif Jameel Energy is playing a leading role in delivering a cleaner, greener future for communities across the world from Chile to Australia.

Daniel Sagi-Vela, Chief Executive Officer of FRV, said: "As the world faces one of the biggest challenges it has ever known, we are proud to be at the heart of the battle, driving forward a new vision for the world's energy landscape and transferring world-class skills, knowledge and best practice to the local workforce of the countries in which we develop projects. Abdul Latif Jameel has a proud history of advancing the infrastructure of life, and we at FRV will do everything we can to continue this tradition."

¹ IEA World Energy Outlook: Solar PV capacity to overtake all but gas by 2040, PV Magazine, 13 November 2018

² IEA World Energy Outlook: Solar PV capacity to overtake all but gas by 2040, PV Magazine, 13 November 2018

³ World Energy Outlook 2018 Executive Summary, International Energy Agency, 13 November 2018

⁴ World Energy Outlook 2018 Executive Summary, International Energy Agency, 13 November 2018

⁵ World Energy Outlook 2018 Executive Summary, International Energy Agency, 13 November 2018

⁶ World Employment Social Outlook 2018, International Labour Organization, May 2018

⁷ Solar Outlook Report 2018, Middle East Solar Industry Association, March 2018



Jameel Arts Centre entices and excites crowds after November's grand opening

His Highness Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum officially opens new building after an 18-month construction.

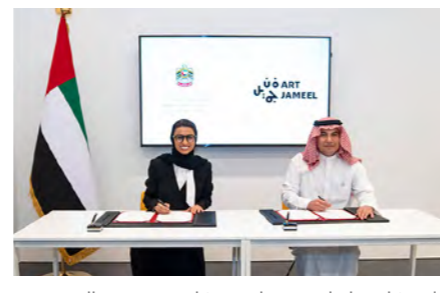
More than 13,000 visitors flocked to the Jameel Arts Center within days of its opening in November 2018, Art Jameel has revealed. The 10,000m², three-story space is set to become a central part of the Middle East's arts scene, creating a new cultural hub for the region and displaying the scale of its ambition with a series of eye-catching exhibitions and programs in its first weeks of operation.

The Center, which was officially opened on Thursday November 8, 2018, by His Highness Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum, Deputy Ruler of the



Emirate of Dubai, saw its galleries immediately reach their full capacity. "We were forced to limit access, with queues forming around the building," said Antonia Carver, Director of Art Jameel.

Plans for the Jameel Arts Centre were originally revealed in March 2017. Both construction and costs were kept on target, culminating in November's grand opening in front of a packed audience of high-profile guests from the worlds of art, business, philanthropy and politics. Her Excellency Noura bint Mohammed



Her Excellency Noura bint Mohammed Al Kaabi and Fady M. Jameel, Chairman and founder, Art Jameel.

Al Kaabi, the UAE Minister of Culture and Knowledge Development, provided a fascinating welcome speech while exhibitions featuring 40 different artists were also displayed.

Ms. Carver said: **"Five years of planning and building, and 1.4 million hours, have gone into creating the Jameel Arts Centre. We are thrilled**

and overwhelmed by the incredible response — from international museum directors and artworld colleagues to the 'curious' of the UAE."

"Art Jameel's mandate is all about supporting artists and providing access to the arts for all; we couldn't have hoped for a better way to debut our first Centre. We'd like to thank our government and private sector partners, as well as the community-at-large, for supporting us in bringing this dream alive."

Situated at the tip of Dubai's Culture Village, with views overlooking the Dubai Creek, the Jameel Arts Centre also welcomed directors and curators of the V&A, British Museum, Delfina Foundation, Whitechapel Gallery, and Royal College of Art (all London); Louvre, Centre Pompidou, Musée Rodin, and Musée D'Orsay (all Paris); the Metropolitan Museum of Art, New York; Getty, Los Angeles; Aga Khan Museum, Toronto; and Ashkal Alwan and National Museum, Beirut.

On its first public opening, more than 300 teens from across the Emirates — many of whom were making their first visit to any museum — were given guided tours. Other artist-, curator- and architect-led tours were available to adult throughout the rest of the week.

Among the highlights was the regional premiere of WATERLICHT, an immersive light installation by renowned Dutch artists Daan Roosegaarde; Crude, a group exhibition curated by Murtaza Vali contemplating oil in both historic and contemporary contexts; and solo

shows from four eminent artists from the Middle East and Asia — Maha Malluh, Lala Rukh, Chiharu Shiota, and Mounira Al Solh.

The Jameel Arts Centre will make history not just for its exhibitions, but for its determination to make the arts and cultural life more accessible to all.



By housing the Jameel Library, the UAE's first open-access contemporary arts library and resource center, it will provide a collection of almost 3,000 books, journals, catalogs and theses for general consumption.

A further demonstration of the Jameel Arts Centre's vision is provided by the Youth Assembly, a pioneering peer-to-peer program running until April 2019, in which the next generation of creatives will produce a series of exhibitions and events geared specifically towards those aged 18-25.



The Jameel Arts Centre was designed by Serie Architects and features a 300 m² open-access research center, an outdoor sculpture area, a café, a restaurant, and a bookshop.

The Jameel Arts Centre was designed by Serie Architects and features a 300 m² open-access research center, an outdoor sculpture area, a café, a restaurant, and a bookshop.

Getting There

Jameel Arts Center is open-access and free for all. Visitors are requested to stop at the Welcome Desk to register and pick up a map to explore the Centre, courtyards and the surrounding Park.

The Center has a number of facilities to make visits more enjoyable and convenient. Jameel Arts Centre has free WiFi throughout the building for visitors to remain connected as well as luggage check at the Welcome Desk and lockers for easy touring. It is also equipped with male and female Faith Rooms on the Ground level.

Jameel Arts Centre is located in Jaddaf Waterfront, nestled between Business Bay Bridge and Garhoud Bridge on the Bur Dubai bank of the Dubai Creek.

Public Transport

Jameel Arts Centre is a 12-minute walk from Al Jadaf metro station (Green Line). Metro journeys can be planned on the [RTA website](#).

By Car

Jaddaf Waterfront is accessible from both E11 and Al Khail road.

Parking is located in the Jameel Arts Centre's basement, and is available in the outdoor, drop-off parking area.

Opening times

| | |
|-----------|-------------|
| Sunday | 10am – 8pm |
| Monday | 10am – 8pm |
| Tuesday | 10am – 8pm |
| Wednesday | 10am – 8pm |
| Thursday | 10am – 8pm |
| Friday | 10am – 10pm |
| Saturday | 10am – 8pm |



Real people, real stories –
Business with a community
impact: leading the change
in Saudi economics

Since joining Abdul Latif Jameel Investments in 2016, Fahad Aljomaih has seen the group's impressive work first-hand.

After studying in the U.K. and the United States, Mr Aljomaih embarked on an exciting financial services career. His first role, as an equity analyst, saw him based in Riyadh – and it is from the Saudi Arabian capital that he has now acquired a decade of experience.

Mr Aljomaih, Head of Investments at Abdul Latif Jameel Investments, says the team spirit, work ethic and positive attitude at Abdul Latif Jameel has been a key factor in its success. He is determined to capitalize on those strengths to ensure Abdul Latif Jameel Investments helps Saudi Arabia achieve its Vision 2030 ambitions of attracting more foreign investment and expanding the country's economic base.

“Strong corporate governance is one of the many things that give Abdul Latif Jameel such an excellent reputation across Saudi Arabia. It is a reputation that is well deserved.

“From government bodies down to local communities, we are trusted to act in the best interests of the country and its people. We can deliver on that trust because teamwork is at the heart of Abdul Latif Jameel's culture. We work hard together, and we achieve success together. Nobody is bigger than the organization: we all

make a contribution to help the sum be greater than its parts.

“Abdul Latif Jameel Investments is an ambitious company and signing our first partnership agreement with a leading Swiss service provider was an exciting moment. The knowledge, insight and skills of our senior management team has helped to inform our investment strategy and set our investment goals. Furthermore, the management team has created a motivational environment that inspires us all to achieve our ambitions.”



EVENTS

Celebrating international applause for projects in Saudi Arabia and Turkey



The **Hayy: Creative Hubb** in Jeddah has received three international architectural awards in a testament to the work done by UAE and Japan-based architectural practice, **ibda design**.

The 17,000m² cultural complex, which is due to open in 2020, won a Gold award at the Hong Kong Design Awards, a Silver award at the [New York Design Awards](#), and was honoured for exceptional design by the [American Institute of Architects](#).

Fady Jameel, Chairman and Founder of Art Jameel, said: **“We are delighted**

to celebrate the international and prestigious awards received by **ibda design** for **Hayy: Creative Hubb**, currently under construction in Jeddah. We look forward to launching this dynamic complex in 2020 for the Saudi community and the region at large.”

Toyota Turkey collected two Silver and one Bronze award at the 30th Crystal Apple Advertising Awards for two separate hybrid communication projects.

At a glittering ceremony in Istanbul, the Toyota Hybrid Silence Broadcast project won the Silver award in the Perfection in Media Implementation category and a Bronze award in the Media/Product and Service/Durable Goods category.

Toyota Turkey also won a Silver award in the Media Usage/Cinema Implementation category for its Energy From Breaking Pedal project.



Events round-up

Here's a brief round-up of some of the main business events in the region recently.

Saudi Arabia Renewable Energy – Solar & Wind, Riyadh, Saudi Arabia January 22-23, 2019

Across two intensive days, delegates from across the MENAT region will receive updates on Saudi Arabia's National Renewable Energy Plan (NREP) and discuss the country's future plans to ensure its position as a leading global player in the renewable energy industry.

International Conference on Environment and Natural Science, Riyadh, Saudi Arabia February 27-28, 2019

www.iastem.org
The 560th ICENS event brings together world-leading academics and industrial experts to facilitate knowledge sharing, discussion and networking in the Saudi Arabian capital.

Global Financial Forum, Dubai, United Arab Emirates March 11, 2019

[Financial Times Live](http://FinancialTimesLive)
Key players from the local and international financial system gather at Dubai's Madinat Jumeirah Resort to assess the prospects for investment and expansion in the high growth emerging markets of the MENA region.

Middle East Electricity, Dubai, United Arab Emirates March 5-7, 2019

www.middleeastelectricity.com
In 2018, the largest gathering of power and trade professionals in the MENA region attracted more than 20,000 visitors from over 130 countries. Expectations are even higher for the next Dubai World Trade Centre event, with technical seminars, training workshops and a dedicated conference for the power generation sector all new on the agenda in 2019.

Abdul Latif Jameel 