Digital Transformation
a new era dawns for Aramco and its operations

see page 3

The Upstream Digital Transformation’s strength resides in its significant predictive capabilities, bringing digitization, automation, and artificial intelligence to the core of our business. Providing augmented analytical and visualization capabilities that thrive on established databases, it is a groundbreaking achievement transforming functional details to aggregated impact, involving reservoir, well, and surface facilities, providing cohesive representation of an asset across its lifecycle. (Photo: Moayed Al-Qattan/MPD)

With restrictions now lifted ...
we must not become complacent in controlling COVID-19

Do Your Part by
Wearing a Mask in Public
maintain physical distancing of 2 meters at all times
CEOs: Aramco maintains strong business ties through pandemic

Dhahran — In collaboration with Aramco, the Eastern Province Chamber of Commerce held a virtual meeting on Monday with Aramco president and CEO Amin Nasser in which members of the contracting committee and other experts in the contracting, manufacturing, and supply chain participated to discuss various topics within these areas.

In his speech during the conference, Nasser said, “The relationship between Saudi Aramco and the private sector has developed since the company’s start, to become more organized and inclusive, with the ikva program being the cornerstone.”

“The success of this program led to this company’s success, in collaboration with the private sector, in localizing businesses, creating job opportunities, and developing small- and medium-size enterprises,” he said. “The program has also proven to be effective during the COVID-19 pandemic, which impacted supply chains globally.”

Nasser highlighted that the company has multiplied its support to developing small- and medium-size enterprises five times in the ikva equation, which will attract large companies to increase available opportunities in their supply chains, and to prepare small companies for participating, through which ikva will also support Tajseer, the Chamber’s initiative.

Nasser said that the company always makes sure that its position is in line with its responsibilities, which balance commercial targets, strategies, and national responsibilities. “We are optimistic that the worst of this pandemic is now behind us. Aramco has encountered big challenges in this crisis, but our readiness was there to deal with it. Dealing with epidemics is part of our corporate risk management. It was among secondary nonindustrial incidents, and with this pandemic, it was reclassified to be among the main risks.”

Digital transformation and opportunity

Nasser also spoke about the company’s operations and projects saying that digital transformation will continue to play an even more important role in shaping the current and future work environment, and create more innovations and opportunities.

“Aramco has established a new organization, headed by a vice president, to identify digital transformation opportunities for the company, and to accelerate its execution, intensifying the company’s profit, and enabling reliability and operational efficiency. The pandemic proved the value of investing in digital transformation, and that this requires that the capabilities of the vendors, contractors, and commercial partners are highly secure, and that is why meeting cybersecurity requirements is now a condition in developing the private sector and its continuity with Saudi Aramco.”

Referring to the main projects such as SPARK being developed to the east of Abqaiq, as well as the King Salman International Complex for Maritime Industries and Services in Ras Al-Khair, Nasser mentioned that Aramco’s efforts strive to enable an industrial renaissance, which contributes to building a local supply chain, reinforcing the Kingdom’s position as a strategic center for industries in the Middle East, in line with the Kingdom’s Vision 2030.

Nasser also spoke about climate change and its impact on the oil industry, emphasizing that Aramco puts climate change in its top priorities. The company is considered among the lowest in terms of carbon intensity according to third-party studies, and it continues to look for solutions to reduce its greenhouse gases by developing and deploying technologies and innovations.

Amin Nasser said, “Saudi Aramco responded with a series of immediate measures and actions set to mitigate the impacts of the pandemic in many areas, including rescheduling projects, rearranging discounts on contractors, and even full settlement with some of the key contractors, to release some of the pressures on local contractors. We also implemented a monitoring system to ensure that contractors process payments to subcontractors. Some of the conditions were changed to allow the use of bank guarantees instead of monetary guarantees and to reduce these guarantees in relation to the execution progress of the work well.”

Mohammad A. Al-Shammery, vice president of Procurement and Supply Chain Management, mentioned that Aramco prepared highly equipped central call centers and digital tools to assist with ongoing communications between the company and the private sector, especially in exceptional cases such as the COVID-19 pandemic. The vendors’ thinking as a single entity was to provide quick responses from the business sector, and respond to them effectively to ensure effective communications with all our vendors. All communications with vendors are tracked and monitored until the reported problem is resolved and closed.

Al-Shammery added that there is a service center in Alsharqia Chamber to support contractors and vendors, as well as other centers placed in Riyadh and Jiddah to provide immediate support to vendors. There are also direct communication channels with the Contracting Department and other operational organizations responsible for executing these contracts. For example, last year, the Contracting Department organized regular meetings with more than 80 companies upon their request, to discuss various topics, including qualification, registration, financial requirements, and others.

Al-Shammery highlighted Aramco’s initiative and its efforts to address the unprecedented improvement in the procedures for selecting contractors and suppliers, and prequalification, by utilizing digital transformation, and providing a single electronic portal through the “SAP Arabia” system to achieve prequalification of contractors for all services.

Your voice: my quarantine journey: isolation, education, and hope

by Bashayer S. Albadr

Bashayer.Albadr@aramco.com

There’s always a bright side to every experience we go through. I was reminded of that when, as part of my first year at Aramco, I was nominated to be part of the Central Community Services Department COVID-19 team.

I was proud to be part of the team, and it was challenging from the start, as much of what we were dealing with was unknown. We worked hard to protect our communities, spreading awareness and implementing guidelines and regulations such as wearing face masks and checking people’s temperature. We put a lot of effort into our procedures, and we updated our procedures to prevent the spread of COVID-19.

Basically, we put humanity first in our fight against COVID-19, and it was very rewarding, serving both company and Kingdom.

On a personal level, I found great satisfaction in helping the quarantine journey for repatriating employees, and I felt honored to help those who are on the front-line of the pandemic.

Still, fear sometimes creeps in. When I learned the virus can steal one’s ability to taste and smell, I felt a sense of dread. Even more virulent was my own quarantine experience.

I got a call from the hospital; somebody I knew had tested positive and I needed to immediately self-isolate and schedule a swab test.

My thoughts turned mostly to my family. Before the call, I had been so excited and optimistic about celebrating Mother’s Day, but my mind quickly clouded with guilt of potentially hurting someone I love. The party was canceled, and I spent Mother’s Day at the hospital and my room.

My time in isolation was mostly plagued with anxiety as I waited for my test, and then I waited for its result. Thank God, I tested negative, but I still had to complete the 14-day home isolation before returning to work.

This was only the first of two quarantine experiences. Even though I have been vigilant in observing preventative measures, I had to be quarantined again for 14 days. Again, I tested negative, though the experience was different as I had to quarantine in a hotel, not home.

I worked hard to stay connected with family and friends during this time, even growing closer with one of my friends. It turned out to be a blessing, making my quarantine easier and even fun.

These have truly been times like no other, and though at times difficult, it has brought me courage. It has sharpened my personality and made me not only stronger, but also more cautious. Moreover, it has also been full of opportunities, especially at the very beginning of my professional career — it has been a true honor.

If I could offer just one piece of advice, it would be to always remember to wear your facemask wherever you go, sanitize and wash your hands regularly, keep a safe physical distance, and continue to take extra precautions. COVID-19 is still here, and we are all responsible to stop the spread of this strange virus.

Be patient and stay positive; there’s always hope that life will go back to normal and we will soon be able to hug our families and friends.
Dhahran — In an era of intelligent systems and the oil and gas industry rapidly transitioning to a digital future, exploring end-to-end solutions where data is available to decision makers across disciplines at the right time. That is where Aramco’s new Upstream Digital Transformation comes in.

Recently launched by Petroleum Engineering and Development (PEED), the new platform provides an immersive experience inside reservoirs, opening windows of opportunities to maximize asset value. Not only that, but the Upstream Digital Transformation also provides:

- An environment with software that is agile, smart, and innovative.
- An evergreen environment powered by a common understanding of the surface and subsurface enriched by the user’s domain knowledge.
- An environment of limitless collaboration accessed through an integrated, intelligent, and powerful experience transforming the way we work and what we can achieve.

The Upstream Digital Transformation’s strength resides in its significant predictive capabilities, bringing digitization, automation, and artificial intelligence to the core of our Upstream business. Providing augmented analytical and visualization capabilities that thrive on established databases, it is a groundbreaking achievement transforming functional details to aggregated impact, involving reservoir, well, and surface facilities, providing cohesive representation of an asset across its life cycle.

Beyond a dream come true

The platform’s strength resides in its significant predictive capabilities, bringing digitization, automation, and artificial intelligence to the core of our Upstream business.

“The Upstream Digital Transformation goes beyond being called a dream come true, as 20 years ago it was not even feasible,” said Mohammed Y. Al Qahtani, senior vice president of Upstream, who emphasized it would be a significant addition to the toolkit of our young professionals, and that they will further enhance its capabilities.

Achieving the ultimate goal of becoming an industry leader in predictive intelligence required unparalleled approaches. The Upstream Digital Transformation platform provides a major breakthrough as it redefines the relationship between the physical and digital worlds, providing augmented analytical and visualization capabilities that thrive on established databases. It is a groundbreaking achievement transforming functional details to aggregated impact, involving reservoir, well, and surface facilities, providing cohesive representation of an asset across its life cycle.

In the Upstream Digital Transformation, a “data lake” is created, unifying a volume of information that required building a new structure to maximize the freedom of innovation. Allowing professionals to have a holistic view of the entire portfolio, it operates on the basis of a well-established artificial intelligence framework, projecting maximum value through its predictive settings.

Unparalleled visualizations, extraordinary capabilities

Nasir K. Al Naimi, PE&D vice president, said that although several service companies and vendors have developed various products, Upstream Digital Transformation stands out because of its uniquely integrated capabilities and unparalleled visualizations. He further noted that this initiative proudly showcases Aramco technology prowess as it has been fully conceptualized, developed, and implemented internally by our talents.

“At Aramco, we are proud to manage the largest reservoirs in the world, which demands extraordinary capabilities,” said Ali M. Al-Shahri, the Upstream Digital Transformation champion. “With the Upstream Digital Transformation, we have employed advanced analytics and a multitude of advisories to open unlimited opportunities for value creation.”

Al-Shahri added that the Upstream Digital Transformation will enable engineers to execute advanced analytics, generate decision advisories, and maximize asset value.

“The Upstream Digital Transformation is not just a software — it is an environment that connects different domains, expertise, knowledge, and science,” he said. “It is an environment that reveals patterns from huge data that the human brain cannot otherwise comprehend an environment that harnesses the power of automation toward driving performance, optimizing production, and maximizing recovery.”

Al-Shahri spoke proudly of the team who developed and deployed the entire platform within the company, proving what is incredibly possible when professionals of different backgrounds, disciplines, and expertise come together to pursue a great vision.

Interactive demonstrations of core capabilities

As part of the launch, an interactive tour of the Upstream Digital Transformation workstations were set up in the lobby of the Upstream Professional Development Center.

Among the highlights were displays on:

- The multifaceted Upstream Digital Transformation platform comprised of over 50 modules that are fully synchronized, and automated through live connections with a corporate database. These modules provide data-driven analytics and generate insights as well as advisories for decision making that lead to sustained production, maximized recovery, and optimized operations at reduced costs.
- The intelligent environment that reads billions of bytes of live data, runs it into automated calculation systems in real-time, and transforms it into multiple realizations that are the core of reservoir management.
- Digital Twin Models, which are a pioneering breakthrough in the oil industry, providing immersive reservoir visualization and accurate representations of its fluids, which lead to optimal field development with reliable forecasting of future oil and gas recovery from hydrocarbon reservoirs.
- 4-D Surveillance Models, which are precessors to field development planning through high fidelity simulation, and Aramco is by far the industry leader when it comes to high resolution simulation models.
- Digitally Augmented History Match, a remarkable innovation that provides a simulation history match with an unprecedented speed and accuracy at both surface and subsurface levels — a true game changer in the field of reservoir simulation.
- Capital Planning Module, which automates and optimizes the business planning process via a prescriptive rig scheduling simulator.
Insight by SMA: Kingdom Connect

by Strategy and Market Analysis (SMA)

Usage of online shopping among respondents since COVID-19 outbreak

<table>
<thead>
<tr>
<th>Country</th>
<th>More Frequently</th>
<th>Less Frequently</th>
<th>No Change</th>
<th>Rarely or Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSA</td>
<td>48%</td>
<td>22%</td>
<td>19%</td>
<td>12%</td>
</tr>
<tr>
<td>Egypt</td>
<td>47%</td>
<td>22%</td>
<td>19%</td>
<td>12%</td>
</tr>
<tr>
<td>Morocco</td>
<td>35%</td>
<td>29%</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>Jordan</td>
<td>35%</td>
<td>19%</td>
<td>17%</td>
<td>29%</td>
</tr>
<tr>
<td>UAE</td>
<td>34%</td>
<td>29%</td>
<td>23%</td>
<td>14%</td>
</tr>
<tr>
<td>Lebanon</td>
<td>33%</td>
<td>19%</td>
<td>19%</td>
<td>29%</td>
</tr>
</tbody>
</table>

Aviation sector significantly impacted by COVID-19

The arrival of COVID-19 globally and in the Kingdom’s borders upended all travel, impacting aviation significantly. To protect the health of citizens and residents, and to limit transmission of the virus, entry into the Kingdom for the purpose of Hajj and Umrah was suspended on Feb. 27. Suspension of all international flights came two weeks later on March 15, followed by a halt of all domestic transportation on March 21. Two days later, a nationwide curfew came into effect on March 23.

The impact of COVID-19 will continue to be felt throughout 2020. The Kingdom has announced a sharply reduced Hajj. Umrah faces a similar fate with sharply reduced numbers. In addition, international travel remains suspended with no target opening date in sight.

E-commerce boom is likely to sustain after the pandemic

According to Emarketer (a market research company), since the outbreak of COVID-19 (as of March), 48% of respondents from Saudi Arabia have used e-commerce to purchase products that they would have bought from physical stores.

This trend will continue after the pandemic. While COVID-19 may have accelerated the growth of e-commerce in the Saudi market, this has been a trend that has also been evident pre-pandemic.

The implications for businesses to capture the opportunities from this rising e-commerce trend is to invest and build a strong digital presence as a key competitive initiative. Digital capabilities will not only be key for sales and marketing, but can also help firms adapt to cost curves and make each step of the value chain more cost-effective, faster, and efficient.

Amazon launches in the Kingdom as more Saudi shoppers go online

In March 2017, Amazon announced the acquisition of Souq.com, the leading Middle East North Africa e-commerce company for $580 million. However, it was not until June 2020 that Amazon launched in the Kingdom, with customers now being able to shop on an Amazon platform. This development is expected to boost the Kingdom’s promising e-commerce sector — one that has been accelerated by the outbreak of COVID-19.

Globally, e-commerce is emerging as a key engine for retail, with an estimated market size of about $2.2 trillion and is expanding at an annual growth rate of about 24%. Projections indicate that Saudi Arabia’s e-commerce market will grow by 27%, reaching approximately $10 billion by 2022, with a share of total retail sales at 8%.

Amazon can boost the sector by bringing together the best of Souq’s local know-how and its global retailing experience, scaling up e-commerce and further addressing some of the structural bottle-necks that have existed to date. Custom- ers can shop on Amazon in Saudi Arabia using their Souq credentials and get free next day delivery for orders above SR200 ($53). This is expected to boost consumer choice and positively impact the service quality level and e-commerce experience in the Kingdom.

The coronavirus has triggered a surge in online shopping in Saudi Arabia that benefited local retailers even before the arrival of Amazon. However, Saudis have not yet fully integrated shopping online into their habits, as they tend to purchase less frequently online than in a store. The average shopper in the U.S. conducts 19 purchases online annually, but Saudi shoppers do so only two to four times a year. This is primarily due to limited product selection and inconsistent delivery times, coupled with low prices.

The existence of an online e-commerce platform of this scale will encourage more people to buy online and will likely ignite more competition.

Researchers continue groundbreaking work despite pandemic

Dhahran — The pandemic has brought many activities to a halt all around the globe, but not Aramco’s Upstream research team at the EXPEC Advanced Research Center (EXPEC ARC). The center has taken several measures to cope with the “new normal” without jeopardizing its abilities to carry on with its research and technology development efforts.

As it continues its journey of excellence toward leading the industry in upstream research and development (R&D), the world is taking notice. This became evident as our researchers were recognized by many reputable, nonprofit, national and international organizations — a testament to their value in driving efforts to reach our goals.

EXPEC ARC’s R&D efforts cover all upstream domains of geology, geophysics, engineering (drilling, reservoir, and production), and advanced technical services. Research in these domains strives to develop novel technologies to achieve Aramco’s key upstream objectives of increasing discovery and recovery of hydrocarbons, and ensuring production reliability in a cost-effective manner.

Receiving global attention for transformative breakthroughs

This continuous stream of groundbreaking technologies is transforming how upstream operates and is being felt around the world, drawing global attention to Aramco and translating into awards for our scientists and engineers, placing us at the forefront of upstream R&D.

Some awards have included:

- The prestigious HRH Prince Mohammed bin Salman Foundation (MISK) fellowship award
- The “Conrad Schlumberger Award” from the European Association of Geosci- entists and Engineers
- The Energy Champion and the Young Energy Professional of the Year awarded by the Energy Institute.

And these are just a few. In addition, we have earned numerous awards from the Society of Petroleum Engineers, which speaks volumes about our valued contribu- tions to the industry. The breadth of fields covered by these awards also speaks volumes of the importance of EXPEC ARC’s contributions to Saudi Aramco’s operations and the industry at large - particularly in discovery, recovery, reliability, and cost ef- ficiency.

“Our goal in EXPEC ARC is to develop high-impact technologies that create value in Saudi Aramco’s upstream operations,” said Ashraf M. Al-Tahini, EXPEC ARC manager. “These local and international recognitions demonstrate the quality and commitment of our researchers and are a testament to the company’s leadership in upstream R&D.”

With strong support by corporate management, the company’s value of R&D to produce creative solutions for tomorrow’s upstream operations is unquestioned. Na- sir K. Al Nami, vice president of Petroleum Engineering and Development, says he is proud of the cutting-edge upstream re- search and development. “Our researchers focus on developing innovative technolo- gies and field-testing them in the largest, most productive oil and gas fields in the world — those in Saudi Arabia,” he said. “I think one of the most exciting aspects of working at EXPEC ARC is the opportuni- ty to put their far reaching research ideas, theories and developments into practice in these renowned oil and gas fields.”

EXPEC ARC plays a fundamental role in Aramco’s upstream success, added Up- stream senior vice president Mohammed Y. Al Qahtani. “This is through their success in addressing field challenges and comes as a result of its close cooperation and collaboration with the various proponents within Upstream. It’s also a result of the support from all of corporate management who realize the importance of having cut- ting-edge upstream research and develop- ment that is at the forefront of industry advances,” he said.
Aramco propels young KFUPM's College of Petroleum Engineering and Geosciences to new heights

After opening only five short years ago, the College of Petroleum Engineering and Geosciences (CPG) at King Fahd University of Petroleum and Minerals (KFUPM) has reached a top 10 global ranking.

Within the Quacquarelli Symonds (QS) World University Rankings, the CPG is now in the same top tier as the world's elite petroleum engineering schools, including the National University of Singapore, the University of Texas at Austin, Stanford, Texas A&M, and Imperial College London. Published annually by the British-based company QS, in partnership with Elsevier, the QS World University Rankings are one of the most widely read rankings of higher education globally.

This accolade is a reminder that Saudi Arabia is no longer just a consumer of knowledge, but also a producer of educational excellence. The results of the 2020 QS University Rankings show that the CPG has the top Petroleum Engineering Department in the Middle East region.

A testament of determination and collaboration

This success is a testament to the will, collaboration, and determination of two organizations — Aramco and KFUPM.

In 2010, Aramco began working with KFUPM on a joint initiative with a vision to establish a new college that would become one of the top five elite colleges globally in the domain of petroleum engineering and geosciences.

EXPEC ARC leveraged the close physical proximity of KFUPM to work with the university's faculty and administration to make the vision a reality. In February 2015, these efforts were formalized with the signing of a bilateral framework agreement, with Aramco providing the seed funding for this initiative, in addition to expertise and personnel at all levels, as well as operating expenses.

The CPG formally commenced instruction in the fall of 2015 as an integrated college, which combines disciplines that provide essential talent for the upstream sector of the oil and gas industry.

From the outset, Aramco and KFUPM were both determined to create a college that would introduce 10 short years rank among the top petroleum engineering departments in the world.

That original vision has become a reality five years faster than expected.

This success is the direct result of a close collaborative effort between EXPEC ARC, Aramco's global research centers, and KFUPM to see the vision through, availing all required resources, and direct engagement between all involved.

Aramco goes all-in from the top on down

The company's continued commitment to this endeavor comes in many forms and at the highest levels. Mohammed Y. Al-Qahtani, Aramco's senior vice president of Upstream co-chairs the Aramco-KFUPM Collaboration Oversight Board.

Additionally, Aramco has availed its scientists and engineers, who in turn have partnered to develop the academic programs at CPG, as well as help in the recruitment of top global talent to staff the college.

Aramco has also contributed to key organizational and governance positions at CPG at all levels, serving to inject a wealth of expertise from the company to the college.

Key members of its upper management serve on the CPG Oversight Committee, as well as the CPG College Advisory Council and the Global Partnerships Steering Committee.

Additional contributions from the company include seconding Abdulla Al-Kaabi to serve as the Dean of the College, Mazen Y. Kanji to serve as the director of the Center for Integrative Petroleum Research (CIPR), and Fawaz Al-Anazi as the Finance and Administration manager.

Contribution to state-of-the-art facilities

Aramco has made further contributions to the success of the CPG by ensuring its facilities are state-of-the-art to provide teaching and research laboratory conditions that develop the talent of individual students as well as promote technology advancement.

This includes Aramco's coordination and oversight of retrofitting the main CPG Building at KFUPM (Building 76) — completed ahead of the 2017 fall semester — to provide 9,000 m² of offices for faculty, graduate students, post-doctorate fellows, and administration, as well as teaching classrooms, computer laboratories, and e-Learning facilities.

The company also very recently provided two new buildings within the KFUPM campus and the Dhuhan Techno Valley (DTV) on the university’s premises.

The Integrated Teaching and Research Laboratories Building (Building 78) is a 17,000-m² structure housing the CIPR and its 30 research and imaging labs, 15 teaching labs, collaboration rooms, a Knowledge Center, along with state-of-the-art drilling simulators, and a 150-person auditorium.

The Petroleum Engineering and Geosciences Technologies Center (PEGTC) at DTV is a 8,000-m² structure and is a continuation of the larger CIPR, and serves to complement the research activities with increased emphasis on maturing technologies. It includes a state-of-the-art isotope laboratory, nanophotonics and femto-laser facility, multiphase flow, and complex fluid (high-pressure, high temperature (HPHT) flow loop) facility, HPHT microfluidics lab, remote sensing laboratory, and six technology incubator laboratories as well as multipurpose collaboration rooms.

KFUPM, for its part, has also committed considerable resources to the CPG, including new and unique academic programs that truly integrate petroleum engineering with geosciences.

CPG offers accredited B.S., M.S., and Ph.D. degrees in all of its academic programs, while the CPG Summer Camp course (CPG-199) is a flagship signature of the college for the undergraduate programs in petroleum engineering, geology, and geophysics.

The CPG has created a research model that moves away from the historical heavy reliance on technical service studies and run-of-the-mill applied research and has more of a stronger emphasis on fundamental research. The 2-D research model (matrix) merges resource-based programs and challenge-based thrust areas of research.

This helped create a well-balanced ecosystem for the college with a strong academic engagement with the industry and also from six reputable global partnerships (research groups from MIT, Stanford, Cornell, University of Texas, University of Edinburgh, and University of Western Australia).

Aramco's investment in this endeavor is part of its strategic initiatives. Over the next 20 to 30 years, fundamental changes to the company's core business will require a workforce with very different skill sets. It will also require an expansion of internal R&D capacity, especially in upstream activities, as well as a more networked approach to partnering for research, technology development, education, and professional development.

By providing students with unparalleled opportunities to study in an environment that emphasizes the entire upstream value chain, the CPG will be one of the key sources of talent and skill sets needed for the future.

“Both organizations have a unique opportunity to make a tangible impact on the Kingdom’s economic and social development within the context of our new, ambitious, and inspiring 2030 Vision through the strong emphasis placed upon technology transfer and development, innovation, strengthening our national talent bench, and entrepreneurship,” said Al Qahtani.

The world has already benefited from the fruits of the CPG, including the identification of solutions to real-world field challenges as a result of joint research projects between the college and EXPEC ARC.

Next up: Top five

Aramco and KFUPM are both committed to ensuring that the CPG ranks in the top five petroleum engineering colleges globally before its 10th anniversary in 2025.

“We saw an opportunity that provides a win to all involved and we capitalized on it to create a world-class institution that gives a much needed consolidated curricula in petroleum engineering and geosciences. These curricula form the foundation from which our future talent will come. The future is brighter with CPG around,” said Nasir K. Al Nami, Aramco’s vice president of Petroleum Engineering and Development.
IR 4.0 in the spotlight

Yanbu’ Refinery one of seven facilities around the world to reach advance stage of WEF Lighthouse program

Aramco’s Yanbu’ Refinery Department (YRD) has reached the advance stage in the World Economic Forum’s (WEF) “Manufacturing Lighthouse Program.”

Designed to drive industries to adopt technologies of the future, a team from YRD (including Hazem Alharbi, the Digital Transformation group leader; Hamza Harasmi, Digital Transformation coordinator; Ahmed Dawood, process engineer; Ahmed Basodan, instrument engineer; Rakan Alzahrani, 3-D hub leader; Ahmed Bokhari, drone reporting innovator; Raad Mulla, process engineer; Ahmed Alghamdi, field operator; Sultan Nassar, APC engineer; Majed Almozaini, operation supervisor; and Mohammed Haddad, safety engineer) presented to the program’s expert panel review on its leadership in Fourth Industrial Revolution (IR 4.0) technologies.

Reaching this stage was a significant achievement, from approximately 1,000 applicants; only seven facilities worldwide were selected for making the most from IR 4.0 technologies and showcasing leadership in applying the technology to drive operational efficiencies and environmental impact.

using technology to enable a greener, safer way of working

The Lighthouse program was conducted by WEF in collaboration with leading management consulting firm McKinsey during a yearlong study. A study team virtually visited YRD in Saudi Arabia from Switzerland and performed a thorough audit on the refinery’s plants, focusing on YRD’s top IR 4.0 integrated initiatives. The team, with support of Aramco’s IT department, managed to complete the full day virtual tour at three different locations inside the Yanbu’ Refinery, a first for the company.

WEF commended the Yanbu’ Refinery for its successful leveraging of digital technologies to enable a more efficient, greener, and safer way of working. YRD’s use of IR 4.0 technologies covers a broad range, from Integrated Manufacturing Operation Management Systems (IMOMS) and 3-D printing technology to robotics and wearable technologies. Moreover, tying all of these elements together is a support network of engineers and experts, who provide technical support on demand.

our technology center stage

Several technologies have been successfully integrated into YRD’s routine, and were highlighted to the WEF panel. These included:

- **IMOMS**: A technology that employs data validation and reconciliation algorithms to integrate over 25 applications to produce real-time performance dashboards. The IMOMS platform enables YRD frontline leadership and staff to make timely business decisions and capture performance opportunities.
- **Integration of IMOMS has delivered significant flaring reduction, energy savings, and improved refinery production.**

**Smart Plant**: A state-of-the-art distributed control system, which is integrated with smart plant solutions, including advanced process control, control performance monitoring, an alarm management system, and an operator training simulator smart plant, all of which have significantly improved decision making.

**3-D HUB center**: Utilizes 3-D modeling and printing technology to accelerate reverse engineering solutions, including manufacturing obsolete spare parts, prototypes, and training.

**Inspection Robotics and Unmanned Aerial Vehicle (UAV)**: Deployment of robotics and remotely controlled inspection technologies, such as caged drone, subsea operated vehicle (ROV) and crawler magnetic robots, were used to reduce plant inspection time, cost, and human exposure risk. The UAV is controlled remotely and flies autonomously based on preprogrammed flight plans. The caged drone is used for the inspection of confined spaces. The crawler robots are used to inspect inside and outside pipes and tanks, using ultrasonic mapping to inspect for corrosion, residue formation, and structural deterioration.

**Mobility solutions and Smart Helmet**: Mobility solutions provide real-time collaboration with remote experts, enabling them to clearly see what a field worker sees and provide immediate support. The Smart Helmet is a wearable device with a heads-up-display and delivers hands-free operation. One of the most important use cases of this Smart Helmet is that technicians in the field are able to initiate a remote assistance session by live streaming their exact view to an expert engineer, who can then guide the technician precisely and securely using augmented reality technology.

“Yanbu’ Refinery’s objective is to be aligned with Aramco’s corporate digital transformation vision and will continue the journey of developing a digital workforce and adopting Fourth Industrial technologies that will drive refinery safety and maximize refinery efficiency, availability and profitability,” said Abdulatif S. Alshami, manager of YRD.
call for COVID to emerge a fairer world
Aramco fosters global women empowerment discussion for W20

by Janet Pinheiro

Dhahran — The first Arab woman to head a United Nations (U.N.) agency told an Aramco-hosted Women 20 (W20) online seminar this week that COVID-19 has highlighted how the world remains entrenched in traditional and socially undervalued roles for women.

Respected W20 chair and former U.N. undersecretary general Thouraya Obaid said the majority of health workers working on the front lines of the coronavirus pandemic are women. “They are saving lives but no one is saving their own economic life,” said Obaid.

Speaking at the W20 event — held in the lead up to the Group of Twenty (G20) Leaders’ Summit — Obaid advised that women’s equality had progressed, but added, “We need to be able to deal with the reality that we are facing right now.

“We know that global crises can often accelerate the pace of change because they force us to make what we thought to be impossible, simply possible, and achievable,” she told the online audience of 300 people.

“We face a choice to emerge from this crisis into a more disparate and unequal world, or to build and transform our systems toward a more equal and fairer world where the impact of the crisis can be shared by women and men as partners,” said Obaid, one of the first Saudi women appointed to the Shura Council.

She noted that the W20 was “determined to ensure that history will tell a story of equitable recovery following this crisis.”

Saudi G20 presidency and women empowerment

Saudi Arabia officially took on the G20 presidency in December 2019.

Countries in the G20 command about 85% of the world’s economic output, two-thirds of global population, and three-quarters of international trade.

The G20 established the W20 engagement group in 2015 to foster female equality and economic empowerment in its discussions.

A key priority for Saudi Arabia’s G20 presidency this year is women’s empowerment, and the Kingdom has committed to making concrete progress on women’s and girls’ empowerment, youth, and small-to-medium enterprises.

Aramco diversity and inclusion

The W20 seminar was facilitated by the Diversity and Inclusion Division in Human Resources, and administrator Reema H. Siyam said achieving Aramco’s diversity and inclusion goals required a change in mindsets and culture.

As of Dec. 31, 4.9% of Aramco’s workforce consisted of women, and the company now has one female Board member.

Siyam said the company could become even more successful by entrenching a business culture that supports diversity and inclusion. “Working together, men and women can create a workplace where everyone feels comfortable, represented, and included,” said Siyam.

“Do you feel like you can speak up in a room and participate? Do you have a space for your physical, mental, and emotional well-being?” she questioned. “Once you have everyone represented, you start to empower everyone around the table.”

Aramco important to W20

Obaid described Aramco as an “important partnership between W20, which is the women’s engagement group of the G20.

“My international experience has taught me that the best partnerships are built on a foundation of shared interests and priorities, and I am proud to say that both Aramco and W20 have a rich history of working to advance women in the workforce,” she said.

“I have no doubt that by working together during the Saudi Presidency of the G20, we will be able to achieve positive impact on our own economies, globally, so that they can become full partners with men, at home, in the workplace, in the community, nationally, and globally,” Obaid added.

Aramco facilities diversity and inclusion

A question commonly asked by Aramco women is greater bathroom facilities for females, and Sloman advised the company had a number of advanced plans in place to improve our building environments to be more inclusive.

Obaid cheerfully chimed in to lodge her objection to unisex bathrooms. “Now, we sometimes see unisex bathrooms, and we wonder what we do with it.”

Many G20 events are being hosted in the run-up to the Leaders’ Summit in November, and an inaugural W20 meeting was held in Riyadh in January, while the W20 Summit is scheduled for Oct. 20-22 in Riyadh.


G20 countries command:
• About 85% of the world’s economic output
• Two-thirds of global population
• Three-quarters of international trade

Focus of “Women 20”:
• Financial
• Digital
• Legal
• Inclusive decision making
• Entrepreneurship as a cross cutting issue

A Short History of Nearly Everything, by Bill Bryson

by Kyle Pakka

Bill Bryson is best known for his humorous travel books in which he bumbles his way around England, Australia, or the U.S., for example, or along a famous long-distance hiking trail — a task for which he and his companion were spectacularly ill-suited. Bryson’s travel writing is distinguished not only by his wit, but also by his insatiable curiosity and his ability to bring lesser known events and people to life.

These latter two aspects of his talent are on full display in his books where the travel destination is the English language, the life and work of Shakespeare, and the history of the humble place we call home.

But nowhere are Bryson’s story telling gifts more fully on vigorous display than in his book A Short History of Nearly Everything — a travelogue that invites the reader to discover “how we went from there being nothing at all to there being something.”

Nowhere are Bryson’s story telling gifts more fully on vigorous display than in his book A Short History of Nearly Everything — a travelogue that invites the reader to discover “how we went from there being nothing at all to there being something.”

Bill Bryson is hosting this year’s premier international world forum, the G20 Leaders’ Summit, and leading up to this, Aramco encouraged the G20 global discussion on women empowerment this week when it hosted a Women 20 (W20) online seminar.

Reema H. Siyam, shown here participating, said achieving Aramco’s diversity and inclusion goals has required a change in mindsets and culture.

Obaid added.

G20 countries command:
• About 85% of the world’s economic output
• Two-thirds of global population
• Three-quarters of international trade

Focus of “Women 20”:
• Financial
• Digital
• Legal
• Inclusive decision making
• Entrepreneurship as a cross cutting issue

by Kyle Pakka

Bill Bryson is best known for his humorous travel books in which he bumbles his way around England, Australia, or the U.S., for example, or along a famous long-distance hiking trail — a task for which he and his companion were spectacularly ill-suited. Bryson’s travel writing is distinguished not only by his wit, but also by his insatiable curiosity and his ability to bring lesser known events and people to life.

These latter two aspects of his talent are on full display in his books where the travel destination is the English language, the life and work of Shakespeare, and the history of the humble place we call home.

But nowhere are Bryson’s story telling gifts more fully on vigorous display than in his book A Short History of Nearly Everything — a travelogue that invites the reader to discover “how we went from there being nothing at all to there being something.”

Nowhere are Bryson’s story telling gifts more fully on vigorous display than in his book A Short History of Nearly Everything — a travelogue that invites the reader to discover “how we went from there being nothing at all to there being something.”
She’s coming in with more than enthusiasm

Maria had a restless night and woke up feverish. She attributed it to jitters over her presentation that morning, and considered Skyping from home instead. But isn’t it always better to present at work?

Maria failed to recognize her fever as a key symptom of the virus. Her presence in the office throughout the day put her co-workers at risk.

Never let your guard down.

Because it’s not only about you. It’s about everyone’s safety. Unsafe personal behaviors can destroy lives. Do your part to keep us all safe.
an outing to al-Uqair
take a step back in time at historic port

by Chiara Ciampricotti Coangeli

Approximately an hour from Dhahran, along a stretch of natural and wild coast, you get to al-Uqair. Fifty miles northeast of the fertile oasis of al-Hasa and its main city of Hofuf, the journey to al-Uqair features beautiful lush scenery with a path full of palm trees that arise misaligned in bushes and throw their branches into transparent and pristine waters. The beach collects the signs of time, bringing a myriad of shells, with thin and rough shells, fans with wide grooves, and transverse strips of various colors to the shore.

Along the road, the signs indicating the location suggest a tourist attraction. But, when you arrive at the middle of the square that houses the parking lot, it instead offers the feeling of a somewhat neglected place. Still, sometimes the charm of a place does not lie in what it represents, but in what it evokes.

The walls corroded by the salt air, the wood of the doors smoothed by the wind, and the rusty bolts all refer to the glories that were once celebrated here. These days, it is an incredible hidden gem, which attract locals and tourists alike.

Once a busy hub of international trade

It was the first seaport in the Arabian Gulf. The cargoes moving from al-Uqair to al-Hasa ranged from 250 to 300 shipments of goods such as timber, food, coffee, cardamom, spices, clothing, perfume, incense, and sandalwood, coming from India, China, Iran, Iraq, Yemen, and Oman. They returned with the most significant products of al-Hasa such as dates, mussels, palm shoots and leaves, wool, and livestock.

Al-Uqair also tends to have ties with ancient Gerrha and Mesopotamia. Some believe it was built by Arabs as a defense. As foreign attacks were predicted, the fort could provide a safe haven, as well as defense.

The fort’s origin is still under question, and its history remains a mystery. When the Kingdom was established, al-Uqair marks the border between Saudi Arabia and Kuwait.

Through the years, beauty perseveres

Although the history of those who built al-Uqair remains inconclusive, it stands in quiet testimony to a mysterious and diverse cultural landscape that flourished in its proximity. The beach enhances the scenic beauty of the fort, and preserves this historical asset.

It was its economic gateway — the main port through which to access the East and the middle of the country. Its historic position was strengthened due to the political agreements established during the reign of King Abdulaziz.

This historical site was the location of the conference, at which the Uqair Protocol of 1922 was issued, helping establish the borders of modern Saudi Arabia by King Abdulaziz. The protocol is of great political significance, and to this day still stands in quiet testimony to a mysterious and diverse cultural landscape that flourished in its proximity. The beach enhances the scenic beauty of the fort, and preserves this historical asset.

On a sunny day, the light color of the building is striking against the blue background created by the sky and the breaking of the waters of the sea. The charm of these structures is often linked to what can be glimpsed from the windows — the traditional palm wood ceilings, and the lamps that descend hexagonally with their play of lights and glass. Immediately the imagination is transported to the past.

Juxtaposed to the fort, there are other very well preserved old structures, including the government and customs buildings, and the mosque. Although the area is under military control, there is always a caretaker available to lead visitors on this adventurous discovery.

If you are fond of historical explorations, you will absolutely love wandering in this old iconic city that has witnessed the test of time.
students team up with Aramco to promote recycling and Earth Day

Dhahran — Over the years, Aramco has collaborated annually with students at its expatriate schools to celebrate international Earth Day through an art competition. The event, which is sponsored by our Recycling Group in the Gardening and Sanitation Services Division, is designed to increase recycling awareness and environmental stewardship among students throughout the community.

This year, the global threat of COVID-19 provided a twist to the collaboration, but it wasn’t to be missed as this was the 50th anniversary of Earth Day. Though students were being required to be taught via distance learning techniques at home, the Recycling Group found an interesting idea on how to encourage them to “create” within the comfort of their homes.

The students were asked to create a piece of artwork using recyclables such as plastics, papers, and aluminum found lying around inside their house. Each entry earned students “Wildcat house points” while in lockdown.

The judges had a difficult task of scaling down from very high-quality submission entries to the top 10 using the following criteria — overall impression, innovation, originality, and delivery of the recycling message.

Five lucky winners finally emerged from using an electronic voting selection system, including Zad Ashkar, Bethan Reid, Hafsa Khan, Zaina Mansoor, and Zeyad Ramadan, who received prizes and certificates of appreciation from Recycling’s Ifeyinwa A. Obi, Sobna Arumugam, and Cecilia A. Botty.

The Recycling Group extended their appreciation to the Wildcat Wake Up facilitators, Carol A. Sanchez and Tracey M. Gieson, school administrative staff, Erina R. Kosi, the Logistics and Maintenance coordinator, and teachers for their unlimited support in making this year’s Virtual Earth Day art competition a great success.

The Recycling Group congratulates the winners and applauds participants on all their efforts and thank them for taking part in this year’s competition.

Ithra’s COVID-19 Exhibit to showcase reactions and reflections to the pandemic from around the world

As COVID-19 leaves an unprecedented mark on the world, the King Abdulaziz Center for World Culture (Ithra) is launching the COVID-19 Exhibit, a collection of thoughts, memories, and reflections on their pandemic experience by people from around the globe.

The COVID-19 Exhibit will be a virtual show highlighting objects that have been particularly significant to members of the public during the pandemic. Examples of items being sought by Ithra include newly made works of art or images of objects of particular importance, e.g., a pen, a photo of loved ones or relatives, a diary, a musical instrument, a book, or a note from a family member. Ithra is seeking a wide variety of submissions. In 2021, objects selected by the Museum’s curators from the online submissions will be on display at Ithra in Dhahran.

“While this is an unprecedented time, it is also an unprecedented moment of global solidarity,” notes Ithra’s head of Museums, Laila H. Faddagh. “The COVID-19 Exhibit is an opportunity for the global community to tell our stories during this complicated and difficult time. Art is about connecting people through culture — and culture is based on the exchange of ideas and identities — but we connect maybe even more easily through common objects.

“We can all understand the personal value of family photos, a special mug, a note from an important friend, a musical instrument, a favorite painting, your camera, the pen you use to write in your diary … just as we understand Charlie Brown’s friend Linus had his security blanket,” added Faddagh. “The COVID-19 Exhibit is a platform where you can express yourself and explain your pandemic experience so you can connect with people around the world, and they can connect with you.”

She added that the COVID-19 Exhibit is intended to be a forum for creativity and self-expression for everyone. “Ithra is in Saudi Arabia, but as a leading center for global culture, we want to include people from around the world. In the spirit of welcome, warmth and empathy — especially now during the pandemic — it is an opportunity to connect with everyone, from anywhere,” Faddagh concluded.

goals of the exhibit

The goals of the COVID-19 Exhibit include:
• Offering a platform to share objects that are meaningful to people and their stories
• Providing a perspective on the effects of COVID-19 on ourselves and our relationships with objects
• Connecting cultures and creating dialogue through international participation
• Encouraging self-expression and creativity
• Fostering empathy and unity among people around the world.

The COVID-19 Exhibit will go live to the public in August. The curated exhibition of objects will be open in 2021, at a date yet to be determined. The submission page of the COVID-19 Exhibit is open. To learn more or submit an image/object to the show, visit www.ithra.com/en/covid-19-exhibit.

Ithra Connect and the COVID-19 Journal

On June 23, Ithra reopened to the public with select offerings and significant precautionary measures to ensure public safety. During the pandemic, Information Technology began producing more than 50 ongoing programs through its Ithra Connect initiative. The programs range from videos for children to online society meetups for innovators and culture professionals, talk shows, quiz programs, podcasts, and more.

Ithra has also made membership free to its library where members can borrow any of thousands of audio and e-books. One Ithra Connect program particularly relevant to the COVID-19 Exhibit is the COVID-19 Journal, an online collective diary where people from around the world share their thoughts about the pandemic in Arabic or English.

Ithra has also collaborated with the King Abdulaziz Schools to promote recycling and Earth Day. The students were asked to create a piece of artwork using recyclables such as plastics, papers, and aluminum found lying around inside their house. Each entry earned students “Wildcat house points” while in lockdown.

The judges had a difficult task of scaling down from very high-quality submission entries to the top 10 using the following criteria — overall impression, innovation, originality, and delivery of the recycling message.

Five lucky winners finally emerged from using an electronic voting selection system, including Zad Ashkar, Bethan Reid, Hafsa Khan, Zaina Mansoor, and Zeyad Ramadan, who received prizes and certificates of appreciation from Recycling’s Ifeyinwa A. Obi, Sobna Arumugam, and Cecilia A. Botty.

The Recycling Group extended their appreciation to the Wildcat Wake Up facilitators, Carol A. Sanchez and Tracey M. Gieson, school administrative staff, Erina R. Kosi, the Logistics and Maintenance coordinator, and teachers for their unlimited support in making this year’s Virtual Earth Day art competition a great success.

The Recycling Group congratulates the winners and applauds participants on all their efforts and thank them for taking part in this year’s competition.
There is nothing more tragic than someone losing their life after becoming stranded in their vehicle. As summer temperatures begin to soar, it’s critical for drivers — regardless of whether they are driving on highways or on desert trips — to be prepared in case their vehicle breaks down. It is especially important in regard to the latter.

We often hear on social media about people becoming lost in the desert. Sometimes, they are miraculously rescued. Others have not been as fortunate. There are a number of recommendations that should be considered while planning for an off-road trip, many of them developed over years of experience in off-road trips and rescues. The following tips are designed to help you overcome the kind of unpleasant surprising events that can happen when the nearest community is about 100 kilometers away. When planning your trip, consider the following steps:

1. Appoint a trip leader
2. Check out the weather forecast before leaving
3. Mark gasoline filling stations through GPS
4. Develop your own checklists to double check
5. Save telephone numbers into your phone for rescue support and volunteers
6. Invite someone who is an expert of off-road trips to join you
7. Check out off-road safety videos
8. Make sure to bring along a vehicle repair kit, tools, spare car batteries, jumpers, belt, air compressor, tire repair, jacks, and hoses
9. Make sure to drive a minimum of two 4x4 readily checked trucks
10. Make sure to have an advanced first aid kit, as well as someone who is trained in first aid

While these tips greatly increase one’s ability to respond to surprise circumstances when traveling off-road, the need to take care of safety doesn’t end once the wheels hit the road. During the trip, follow these suggestions:

1. Don’t drive off-road at night
2. Take extra precautions on roads that have no lighting and fencing (especially where camel traffic is common)
3. Don’t attempt to drive during adverse weather conditions
4. Always stay together
5. Never drive when you are exhausted or sick
6. Check the vehicles regularly
7. Maintain tire pressure as per manufacturer recommendation
8. Set camp before sunset in a safe spot
9. Make a home call every day, and share the location and health condition of those on the trip
10. Always extinguish the fire before sleeping
11. Don’t place a fire inside the tent
12. Ensure that your gas cylinder hose and the connection are not leaking
13. Keep all food in cool containers.

By following these steps, it not only will ease your concerns when traveling off-road or on remote trips, it will also ease the concerns of loved ones and colleagues.

In 1945, Aramco began working on the 50,000-barrel per day Ras Tanura Refinery as a first step in a major post-World War II expansion program. The refinery stood as one of the company’s largest, most-essential refineries for 38 years.
Abqaiq campaign looks to recognize hard work of contractor workers

by Masud Rana and Zoe Chiplin

Abqaiq — Aramco employees in the Abqaiq Residential and Recreation Services Division recently distributed more than 150 refreshment boxes to contractor employees, laborers, and janitors in the community as part of its ATTA’A Campaign.

Packed with water, cupcakes, and a variety of sandwiches, the boxes provided a pocket of relief with the onset of summer and during these sometimes anxious days worldwide.

The ATTA’A Campaign and act of kindness was created by the Abqaiq Concession Group to recognize the hard work and support that these individuals offer the company, even though it isn’t often formally recognized.

Small gestures such as these help boost the morale of staff and reminds them that they are appreciated. The event also provided an opportunity to remind those working outdoors and in the elements to make sure to drink plenty of water during the hot summer weather.

Small gestures such as these help boost staff morale and lets contractor workers know they are appreciated. (Photos: Amira S. Alharajin)