



July 2020

SandRose

Magazine



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Kingdom of Saudi Arabia Section

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JULY 2020 EDITION

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AND FEATURE!**

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MESSAGE FROM THE EDITOR-IN-CHIEF

I am honored to present you with the fourth and final edition of SandRose for the term 2019-2020. You will see that this edition speaks for itself in showcasing the hard work of SPE-KSA's teams and volunteers and SandRose's team members and contributors. This year has been a roller coaster, to say the very least. It has forced us all to adapt to a way of life that we never anticipated emerging. In SPE-KSA, it has pushed us to challenge ourselves to continue with our vision and mission and connect with our members and the community while adhering to a virtual way of life.

This edition showcases events and activities pre and post the pandemic – and in all, the teams have excelled. The Young Professionals team held its flagship event, Endogenous, in February and inaugurated YOU 2.0. The Technical Programs team hosted 4 webinars and 1 virtual course. The Student Outreach team continued with its school visits pre-pandemic, supported SPE's Student Chapters in the Kingdom and launched virtual Energy4Me sessions for families to participate in from the comfort of their homes. The Trips and Social Activities team held several community outreach activities pre-pandemic, and supported the community during the pandemic with donation campaigns and healthcare support.

Personally, I find that one of the things that makes this edition unique is the number of valuable contributions we received from members of our community. As you flip through the "General Interests" section, you will find masterfully-written pieces by authors who have dedicated valuable time and effort into writing about topics that are beneficial to all. To all of our contributors, I say: Thank you for choosing SandRose to be the platform on which you share your beautiful work.

As the term comes to an end, I want to give a special thank you to the SandRose team. They have been this publication's guide and support artistically, editorially and structurally. I am grateful for this team of wonderful individuals with various skills and talents. I also give a huge shout out to all of the Saudi artists who have designed the cover pages of our four editions. I am proud that we have this array of local talent and honored to have their work attached to the SandRose and SPE-KSA names. Last but not least, I thank all of the SPE-KSA teams and, especially, the IT team for fully digitalizing SandRose and making it accessible to everyone, everywhere.

2020 has tested our patience, resilience and faith. Some of us discovered new talents and practiced new hobbies. Others struggled to get through their day-to-day routines and responsibilities. It has taught us that we all experience things differently, and that we shouldn't be too hard on ourselves. I am immensely proud of how SPE-KSA and SandRose handled this hurdle, and look forward to greater successes in the upcoming term.

HALA A. ALHASHMI
Editor-in-Chief



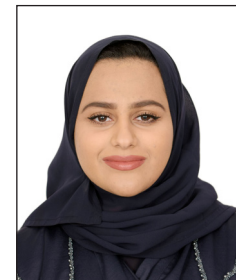
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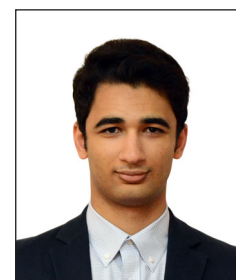
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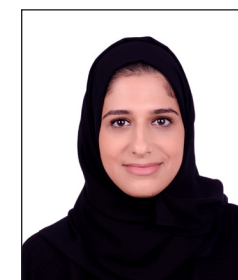
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MESSAGE FROM THE CHAIRMAN

In a few words, I would like to share my personal views of what I believe is the winning formula for the unprecedented and rapid challenges we are facing during these difficult times.

It is an asserted fact that those who acted early, adapted to the unique circumstances of the COVID-19 pandemic and reflected timely strategic changes to their organizations are those who were able to survive, if not improve, to become stronger and healthier in the first half of 2020.

Several leaders from different industries and professions around the globe have attributed the successful reactions to the current pandemic to three main factors:

- I. *Ability to understand the situation and its global impact from the beginning, allowing ample time to equip leaders and their organizations with the right tools to encounter these circumstances, strategic thinking.*
- II. *Timely adaptation to the situation and recognizing the appropriate required changes, leadership.*
- III. *Seeking out ways to grow tactically in this environment rather than utilizing resources to address the consequences only, creative thinking. Although some might think that such actions are trivial, it requires a true leader to steer an organization through a major change.*

While leading through a crisis is an excellent skill, growing from one requires exceptional leadership skills. We should recognize that we have not yet reached the end of this phase as we are currently in the stage of "the new normal". Leaders shall be prepared by setting strategic plans for any wave of changes that could surface.

In conclusion, I am extremely optimistic about the future and confident that we will emerge stronger and brighter. Challenging situations always bring out the best in people and, during this pandemic, we have witnessed an accelerated transformation to the future around the globe through extraordinary collaboration and innovative ways of thinking.

ABDULAZIZ K. AL SUFAYAN
Chairman, SPE-KSA



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Abdulaziz A. Al-Majed, *King Fahd University of Petroleum & Minerals*

Dr. Abdulaziz Al-Majed is an adjunct professor in the Department of Petroleum Engineering at King Fahd University of Petroleum and Minerals. Prior to that, he was the Chairman of the Department and Director of the Center for Petroleum and Minerals, Research Institute at KFUPM. He received his Ph.D. degree from the University of Southern California, MS degree from Stanford University, and BS degree from King Fahd University of Petroleum and Minerals, all in Petroleum Engineering. His industrial experience includes working for brief periods in Saudi Aramco in the reservoir, production, drilling and workover departments.



Subhash Ayirala, *Petroleum Engineering Specialist, Saudi Aramco*

Subhash Ayirala is an improved/enhanced oil recovery (IOR/EOR) specialist and is currently leading the SmartWater flooding team at Saudi Aramco's EXPEC Advanced Research Center. He has authored or coauthored more than 70 technical papers and 50 journal publications and holds 15 granted U.S. patents. He is an active member of SPE, serves as an Associate Editor for SPE Reservoir Evaluation & Engineering Journal and has received numerous SPE awards. Subhash holds both M.S. and Ph.D. degrees in Petroleum Engineering from Louisiana State University.



Shouxiang Mark Ma, *Senior Petroleum Engineering Consultant, Saudi Aramco*

S Mark Ma is a senior consultant at the Reservoir Description Division in Saudi Aramco. Since joining Saudi Aramco in 2000, Mark has been a lead petrophysicist for logging operations, founding petrophysics professional development advisor at Upstream Professional Development Center, and supervisor of Petrophysical Support & Study Unit. Dr. Ma serves as an Editor for JPT and an Associate Editor for Journal of Petrophysics, and is a recipient of the 2019 SPE MENA Formation Evaluation award.

YOUNG MEMBER OUTSTANDING SERVICE



Meshal Ali Al-Amri, *Norterna Area Oil Operations, Saudi Aramco*

Meshal A. Al-Amri oversees the Operational Excellence and Compliance endeavors for Saudi Aramco's Northern Area Well Completion Operations Department and leads the Well Completion Engineering Support. Meshal is a member of several professional organizations, received several awards and recognitions and authored and coauthored 14 technical papers. Meshal earned his B.S. and M.S. degrees, both with honors and in Petroleum Engineering, from King Fahd University of Petroleum & Minerals and an MBA from Hong Kong University of Science and Technology (HKUST).

REGIONAL PROJECTS, FACILITIES AND CONSTRUCTION AWARD



Majid H. Al-Otaibi, *Manager, Production & Facilities Development Department, Saudi Aramco*

Majid is the Manager of Production & Facilities Development Department. During his 20 years of experience with Saudi Aramco, Majid has been through a variety of disciplines within Saudi Aramco's Upstream business line, including reservoir management, production facilities, production engineering, and drilling engineering. Majid has also participated in multiple oil and gas increments that Saudi Aramco has put on stream in recent years, and was the Upstream Development Team Leader for Manifa Increment. Majid received his B.S. degree in Chemical Engineering from King Fahd University of Petroleum and Minerals (KFUPM), and his M.S. degree in Petroleum Engineering from the University of Texas at Austin. Majid is also a graduate of Saudi Aramco's Technologist Development Program specializing in the area of Facilities and Production Optimization.

REGIONAL COMPLETIONS OPTIMIZATION AND TECHNOLOGY AWARD



Hamad M. Al-Marri, *Manager, Southern Area Production Engineering Department (SAPED), Saudi Aramco*

Hamad M. Al-Marri is the Manager of the Southern Area Production Engineering Department in Saudi Aramco. Mr. Al-Marri has over 29 years of experience in the oil and gas industry. He joined Saudi Aramco in 1991. In its inception, he played a leading role in the formulation of the Unconventional Gas Engineering team and setting the ground rules to support operations in South Ghawar area and Jafurah Rub-Al-Khali Basin and provided key contributions to game changing technologies. Mr. Al-Marri has a Bachelor's Degree in Chemical Engineering, a Master's Degree in Petroleum Engineering and a Master's Degree in Business Administration.

REGIONAL DRILLING ENGINEERING AWARD



Chinthaka Gooneratne, *Petroleum Engineer, Saudi Aramco*

Dr. Chinthaka Gooneratne is currently leading the Internet-of-Things (IoT) infrastructure layout and architecture/framework development for collecting, validating and enriching sensor data to identify patterns and create machine learning/artificial intelligence models to predict and mitigate problems associated with Upstream operations. He has authored 50 US patents, 36 peer-reviewed journal papers, 42 conference papers, 1 book and 5 book chapters.

REGIONAL FORMATION EVALUATION AWARD



Bodong Li, *Petroleum Engineer, Saudi Aramco*

Bodong Li joined Saudi Aramco in 2015 and is currently the technology leader on IoT and Robotics at Saudi Aramco's EXPEC Advanced Research Center. Bodong received a B.Sc and a M.Sc in Mechanical Engineering, from Jilin University and KAUST respectively. From KAUST, he also received his PhD degree in Electrical Engineering before joining Saudi Aramco for the research and development of advanced drilling technologies. He has more than ten granted patents and numerous articles published in scientific journals and conference papers covering the areas of sensing and downhole technologies.

REGIONAL MANAGEMENT AND INFORMATION AWARD



Karam Sami Al Yateem, *Petroleum Engineer, Saudi Aramco*

Karam Al Yateem is an accomplished petroleum engineering leader currently working as the supervisor of production engineering in Saudi Aramco. He received his Bachelor's Degree in Petroleum Engineering from King Fahd University of Petroleum & Minerals (KFUPM), Master's Degree specializing in smart oil field technologies & management from the University of Southern California (USC) and Executive Master's of Business Administration degree from Prince Mohammad Bin Fahd University (PMU). Over the course of his career with Aramco, he has numerous achievements to his credit including launching of the Production Operations Surveillance Hub (POSH), first specialist to graduate from the Company's Production Engineering Specialty Program in intelligent fields, author & co-author of more than 30 technical papers, an SPE certified and recipient of various awards.

REGIONAL SERVICE AWARD



Abdulaziz K. Alsufayan, *Division Head, Upstream Technical Support, Saudi Aramco*

Abdulaziz Alsufayan is a Petroleum Engineer working with the Production and Facilities Development at Saudi Aramco, where he is heading the Upstream Technical Support Division. He holds a B.Sc in Petroleum Engineering from King Fahd University of Petroleum and Minerals (KFUPM). His experience and contributions cover a wide range of petroleum engineering areas including Reservoir Management, Production Engineering and Upstream Facilities Development.



Hind AlRayaes, *Planning & Performance Management Analyst, Saudi Aramco*

Hind AlRayaes is the current Group Leader for the Petroleum Engineering Planning & Performance Management Group and has more than 11 years of experience with Saudi Aramco. She is a major contributor to the PE Business Plan, budgeting, controllable cost and manpower planning. In addition to her job, Hind has held two positions in the Executive Board of SPE-KSA, as the first female elected Treasurer in 2017 and as the Editor-in-Chief of SandRose in 2018.

REGIONAL SUSTAINABILITY AND STEWARDSHIP IN THE OIL AND GAS INDUSTRY AWARD



Ammar J. Alshehri, *Reservoir Engineer, Saudi Aramco*

Ammar Alshehri is a reservoir engineer working with Upstream Development Strategy & Reserves Department and is currently leading the Crude Program Development Unit. Ammar has several years of experience in areas related to carbon management, enhanced oil recovery, and reservoir management. He holds a BSc degree in Petroleum Engineering from Colorado School of Mines, MSc and PhD degrees in petroleum engineering from Stanford University.

REGIONAL YOUNG MEMBER OUTSTANDING SERVICE AWARD



Nassir A. Abalkhail, *Petroleum Engineer, Saudi Aramco*

Nassir is a Petroleum Engineer with Upstream Development Strategy & Reserves Department at Saudi Aramco. He holds a B.S. degree from The Pennsylvania State University in Petroleum and Natural Gas Engineering with a minor in Energy Business and Finance, as well as a M.S. degree in Petroleum Engineering from The University of Texas at Austin. Nassir's journey with SPE started during college with the SPE Penn State chapter and then SPE-KSA after joining Saudi Aramco in 2013, where he worked with various teams, functions, and events. Nassir is also an SPE certified Petroleum Engineer.



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February, 2020

Young Professionals and Students Shine at Endogenous, the Thought Accelerator of SPE-KSA

The SPE-KSA Young Professionals and Student Outreach committees celebrated the finale of their new flagship program, Endogenous. Endogenous is a 'thought accelerator' program that transforms innovative ideas submitted by young professionals and students from around the Kingdom into projects that will help solve the energy industry's current and future strategic challenges.

Endogenous 2020 focused on four main strategic challenges:

Strategy and Development, Operation Enhancement, the Fourth Industrial Revolution (IR 4.0), and Energy Sustainability. With the support of subject-matter experts and mentors, over 50 submitted ideas were thoroughly reviewed and 12 were accepted into the program. The finalists were divided to 12 teams and each team was assigned with a subject-matter expert. The teams then went through an intensive 8-week program to transform creative ideas into SMART (specific, measurable, attainable, reliable, and time-bound) projects in the energy sector. In addition to developing participants' technical capabilities, the program also enhanced their leadership and communication skills.

The Finale

At the program finale, Mohammed S. Alnahas, Chairperson of SPE-KSA Young Professionals, spoke about the importance of youth empowerment and implementing sustainable strategies that will enable the industry to achieve global prosperity. Alnahas was

followed by Seba S. Al-Maghlouth, Chairperson of the SPE-KSA Student Outreach. Al-Maghlouth highlighted the importance of integration between the industry and academia that will enable innovation in the industry and catalyze the ongoing digital transformation.

Next, finalists presented their innovative solutions in front of a panel of experienced technical experts, industry leaders, and academics from various backgrounds within the industry and academia. Apart from the panel, the audience included some of the industry's top executives and more than 300 engineers and students coming from various companies and universities.



Nasir Al-Naimi Vice President, Petroleum Engineering & Development, Saudi Aramco and Chairman of the Board of Directors, SPE-KSA

"As Chairman of the Board of Directors, I am delighted to see the Young Professionals and Student Outreach teams collaborate to develop a novel program with great and sustainable impact on our future leaders. Endogenous represents SPE-KSA section's historic and futuristic values; developing its people, embracing cutting-edge technology, and sustaining the environment to reach our ultimate goal of prosperity. Indeed, Endogenous showed how our youth will succeed in building Environment, Social, and Governance (ESG) based ideas and lead the industry towards new heights to continue providing the world with sustainable energy for generations to come."

Nasir Al-Naimi

Vice President, Petroleum Engineering & Development, Saudi Aramco and Chairman of the Board of Directors, SPE-KSA

The Winning Teams

From the Young Professionals category, team members Hala Sadeg, Fatima Marzoog, Osama Kheshaifaty, Al-Batool Hejaij, and Hiba Alnassar won first place for their idea "Leveraging Emerging Technologies for Sustainable Water Handling", which showcases the economic and environmental benefits of utilizing Acoustic Wave Separation (AWS) and Electro Water Separation (EWS) for water use in hydraulic fracturing operations. From the Students category, team members Ahmed Mahmoud, Mahmoud Elsayed, Hany Gamal, and Basil AlSugair from KFUPM won first place for their idea "Automation of the Total Organic Carbon Estimation using Artificial Intelligence and tools", which applies artificial intelligence to reduce the cost of quantifying Total Organic Carbon (TOC) in unconventional resources, while maintaining proper quality levels through utilizing Artificial Neural Networks (ANN), Fuzzy Interference System (FIS), Functional Neural Networks (FNN), and Support Vector Machine (SVM) techniques. The winning teams were recognized by the Chairman of the Board of Directors of SPE-KSA and Vice President of Petroleum Engineering & Development at Saudi Aramco, Mr. Nasir K. Al Naimi.

With a significant representation of professionals, SMEs, and judges, sponsoring companies' volunteers played a vital role in the success of the program – right from organizing Endogenous to hosting the event. Drawing on the success of the program, SPE-KSA aspires to develop and integrate the program on a larger scale, as part of the global energy think tank.

Written By: Mohammed Alnahas



"We, at SPE-KSA, pay special attention to our Young Professionals and realize the importance of their development both professionally and technically. YPs are not only the leaders of the future, but also the key to today's sustainable development. Thus, we have transformed our legacy YP programs this year to adapt with the contemporary challenges in the energy industry. Endogenous, SPE-KSA's thought accelerator flagship program, was initiated to engage YPs and college students with SMEs in the industry on projects that solve the energy sector's strategic challenges. The program aims to nurture innovative ideas and turn them into projects that will enable the industry to provide the world with clean, affordable, and reliable energy."

Abdulaziz Al Sufayan

Division Head, Upstream Technical Support, Saudi Aramco and Chairman of the Executive Board, SPE-KSA

"We were happy to be given this opportunity to be part of this deep dive project. It allowed us as young professionals from various backgrounds to capitalize on our different strengths to tackle and solve current industry challenges. It particularly was a pleasure to be able to utilize existing in-house technologies to resolve a prevalent industry issue."

Hala Al-Sadeg

Petroleum Engineer, Saudi Aramco and Endogenous Young Professionals Winner



from left Seba Almagnolouth, Mohammed Alnahas, Hind Al-Rayes, Nasir Al-Naimi, Waleed Al-Mulhim, Ziad Jeha, Abdulaziz Al Sufayan



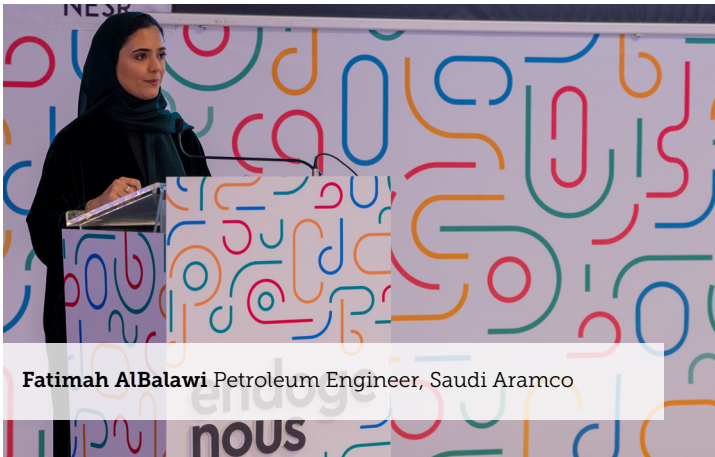
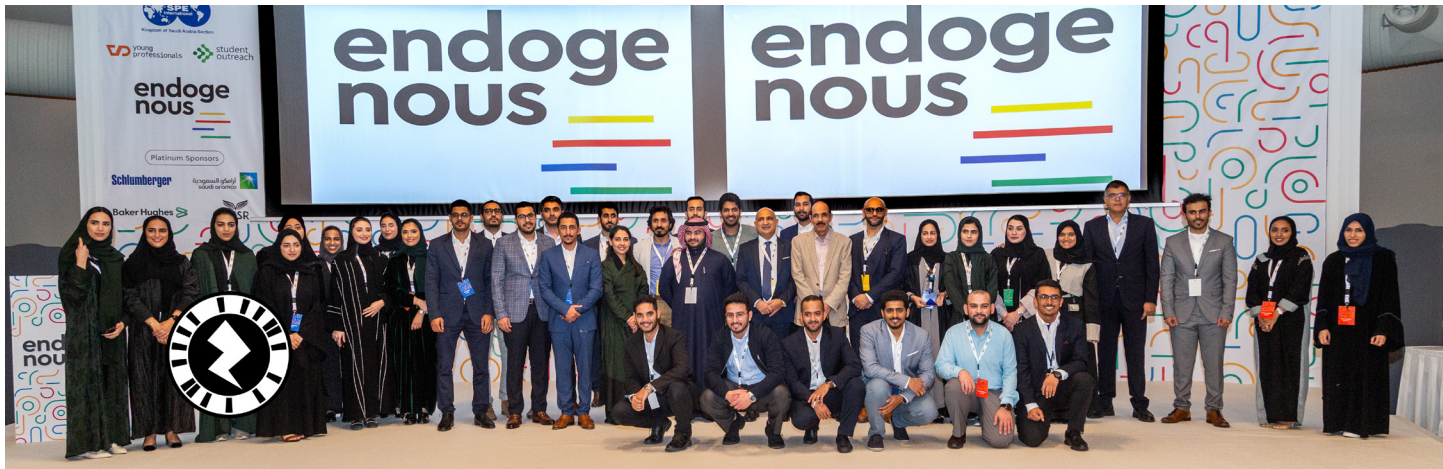
from left Seba Almagnolouth, Mohammed Alnahas, Ziad Jeha, Nasir Al-Naimi, Waleed Al-Mulhim, Abdulaziz Al Sufayan



from left Seba Almagnolouth, Mohammed Alnahas, Zaher Ibrahim, Nasir Al-Naimi, Waleed Al-Mulhim, Abdulaziz Al Sufayan



from left Seba Almagnolouth, Mohammed Alnahas, Hani Al-Maimani, Nasir Al-Naimi, Waleed Al-Mulhim, Abdulaziz Al Sufayan



Fatimah AlBalawi Petroleum Engineer, Saudi Aramco



The Panel



Faisal Al-Nughaimish Manager, Gas Drilling Engineering, Saudi Aramco and Regional Director, MENA, SPE



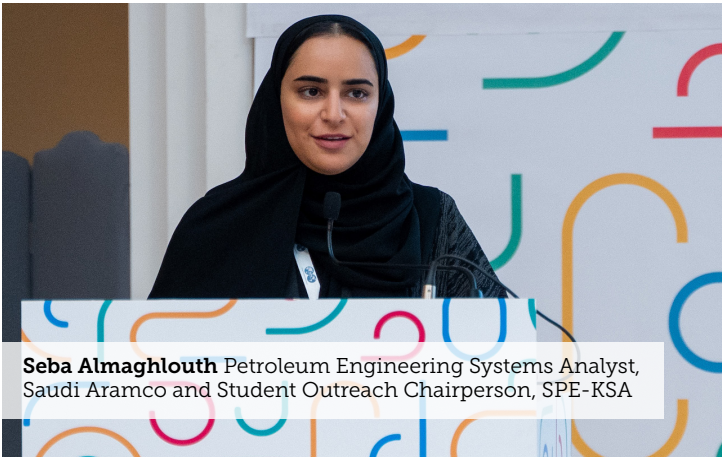
Waleed Al-Mulhim Chief Petroleum Engineer, Petroleum Engineering, Saudi Aramco and Vice Chairman of the Board of Directors, SPE-KSA



Abdulaziz Al Sufayan Division Head, Upstream Technical Support, Saudi Aramco and Chairman of the Executive Board, SPE-KSA



Mohammed Alnahas Petroleum Engineer, Saudi Aramco and Young Professionals Chairperson, SPE-KSA

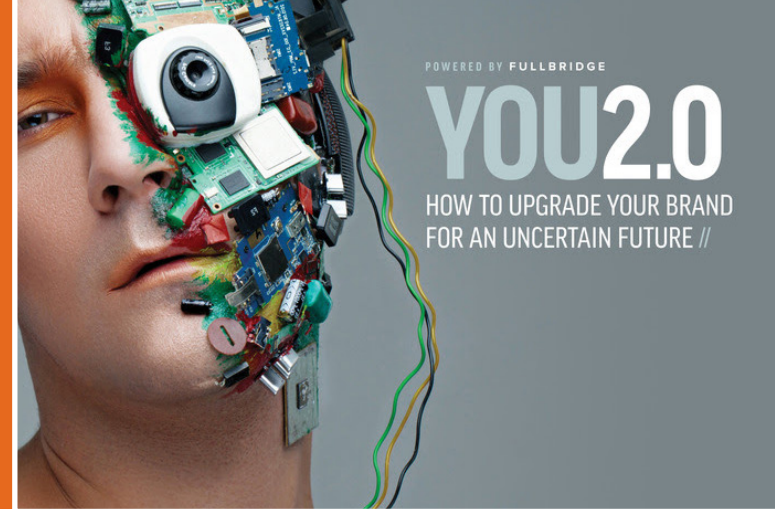


Seba Almaghlouth Petroleum Engineering Systems Analyst, Saudi Aramco and Student Outreach Chairperson, SPE-KSA



YOU 2.0

YOU 2.0: Developing the Essential Skills of Our Young Professionals

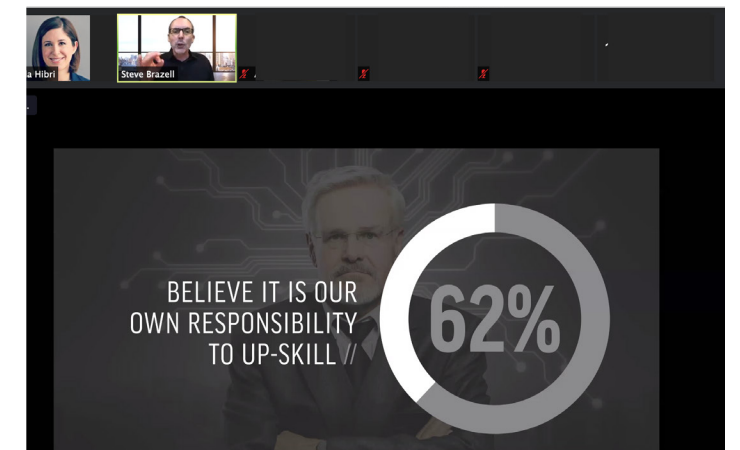
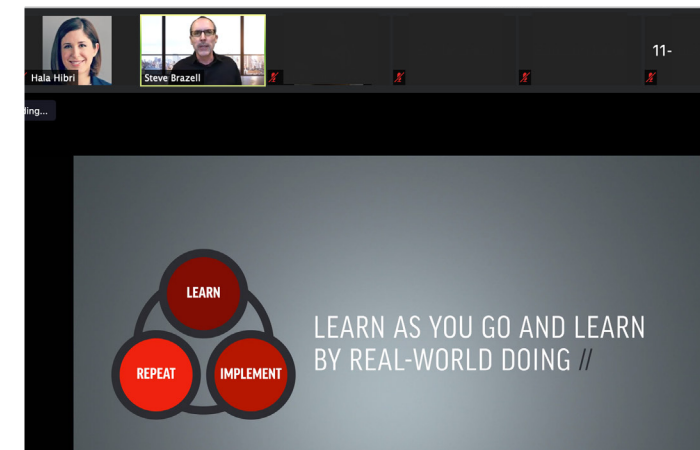


The SPE-KSA Young Professionals committee inaugurated its new program – YOU 2.0 – in April. YOU 2.0 is a 3-week interactive online program developed in collaboration with Fullbridge, one of the leading education technology companies in the world. The program was exclusively offered to SPE-KSA and focused on developing the seven critical skills needed by the future workforce to surpass an uncertain future. The program took a deep dive into three essential skills: **Critical Thinking, Creative Thinking, and Emotional Intelligence.**

Participants completed a combination of individual and group assignments, discussions, and 1-on-1 coaching sessions on each topic. In addition, participants attended an hour-long live coaching session every week with Steve Brazell, the CEO of Fullbridge and one of the United States' most sought-after brand strategists and reputation crisis managers. The coaching sessions were designed to enhance participants' knowledge through interactive group challenges. 50 Young Professionals from 9 different companies were accepted into the program from over 180 applicants from around the Kingdom. The program's success drove SPE-KSA Young Professionals to expand the program and offer four additional essential skills: **Cognitive Flexibility, Hyper-focus, Personal Branding, and Sales & Persuasion.** The expanded program is planned to be delivered in August, 2020.

Why YOU 2.0?

Studies show that by 2030, 65% of us will hold jobs that don't exist, using technologies that haven't been invented, to solve problems we didn't even know we had. Fast-pace change is making many technical skills obsolete every 5 years. Now, we must learn how to adapt and re-invent ourselves to stay ahead of the curve of change and thrive in this hyper-competitive world. SPE-KSA's determination to keep its members and the community ahead of the curve fueled its collaboration with Fullbridge to create a unique program designed to support participants to excel in their future careers.



"With the world going through an unprecedented challenge, it is great to see how SPE-KSA have innovated to continue building our members' capabilities and contributing to our community. YOU 2.0 succeeded in developing our young professionals' skills in areas that are essential to lead the industry in the future. Unique skills such as Critical and Creative Thinking, in addition to Emotional Intelligence, are crucial for our young professionals to excel at the future of work. As we embrace the Fourth Industrial Revolution, we must continue to develop our most valuable asset, our people."

Nasir Al-Naimi

Vice President, Petroleum Engineering & Development, Saudi Aramco and Chairman of the Board of Directors, SPE-KSA

"I participated in YOU 2.0 in order to ensure that SPE-KSA's valued members are receiving a greatly engaging learning experience. Without a doubt, the course was masterfully designed, aiming to stimulate and motivate our members to learn new skills, change certain behaviors, and improve their professional performance. Each skill was thoughtfully designed to provide an experience through three main stages: 1) What is it? 2) Why do we need it? and 3) How do we use it in real life? Very simple, yet very effective. SPE-KSA will continue to bring unprecedented learning experiences to our members in full alignment with the Society's mission and motivated by the Kingdom's Vision 2030."

Abdulaziz Al Sufayan

Division Head, Upstream Technical Support, Saudi Aramco and Chairman of the Executive Board, SPE-KSA

"What I loved about the YOU 2.0 program was its unique setting of having an interactive classroom-like environment while at home, which was very timely especially during quarantine. Learning about the importance of the seven critical skills, techniques on how to apply them, in addition to how these skills can transform your career was eye-opening. I strongly recommend this program to my peers especially for those at the beginning of their professional careers."

Rawan Asiri

Petroleum Engineer, Saudi Aramco and YOU 2.0 Participant



The 7 Essential Skills

Critical Thinking: Critical Thinking is the ability to analyze information objectively then make a reasoned and proven judgment. Good critical thinkers can draw reasonable conclusions from given data and successfully discriminate between useful and less useful data to solve problems and make decisions. Critical Thinking is the single most in-demand skill in the world today, and is the key to accessing surroundings and making smart and sound decisions.

Creative Thinking: Creative Thinking is the ability to look at problems from a new or fresh perspective that suggests unorthodox solutions. Put simply, it is the ability to think outside the box. We are facing new problems and only new and creative thinking can solve them—we can't solve new problems with old thinking.

Emotional Intelligence: Emotional Intelligence (EQ) is the ability to be aware of emotions and express them in relationships judiciously and with empathy. In short, how we engage with the people around us. 90% of top performers have high EQs. 71% of hiring managers said EQ is more important than IQ. And, high EQ people, on average, make \$29,000 more per year than low EQ people.

Cognitive Flexibility: In a fast-changing world, cognitive flexibility is the ability to switch between two different concepts or multiple concepts at the same time to find the right solution. This is the ability to be mentally flexible and quickly thinking of different ideas and how they may be applicable to any given situation. Why do we need it? The pace of change and the flood of data demands mentally agile and flexible team members. In a complex world, we are constantly solving puzzles to find the best or right solutions.

Hyper-Focus: In a fast-changing world where we are expected to think critically and use cognitive flexibility and robust amounts of creativity, it's easy to lose focus. Hyper-Focus is defined as the ability to center one's attention and create a state or condition that permits clear perception and understanding. Why do we need

it? Because in this noisy world, focus helps us apply our attention to what matters most, driving up productivity and dramatically increasing positive results.

Personal Branding: In an over-crowded world, branding has become more important than ever before. It turns out that what's good for big companies is also good for us. A brand is simply what we believe to be true about a person, place or thing. Personal Branding is our ability to take control of what other people perceive to be true about us. Remember, we all judge the book by its cover, so we should take control of our personal brand story. Why do we need it? The world is branding us and we must take control of the process. We must clearly define who we are and why we matter. We can't leave our brand up to the world—they will usually get it wrong.

Sales and Persuasion: Selling is our ability to persuade others of the merits of our ideas, solutions and even ourselves. No matter what we do, we're selling our ideas and ourselves every single day to someone. We're selling ourselves to our potential job, we're selling ourselves to a potential partner, we're selling our idea to a potential investor, and we're selling what we want to do with our friends on a weekend night. If we want to succeed in the future, we need to learn how to sell. We need to be able to persuade those around us. It is why social media influencers are called influencers.

The Journey Continues

The program's success supported the Young Professionals committee's decision to expand and enhance the program. The program is now also offered to KFUPM's College of Petroleum and Geology (CPG) for 80 summer boot camp students.

The new program, planned to be launched this August, will be four weeks long and will cover four critical skills with enhanced learning material and an improved learning experience. Apply for the new program today to have a chance in developing your essential skills and becoming a certified YOU 2.0 graduate!



young professionals

Call for registration: YOU 2.0

In a world constantly being transformed by technology, how can you stay ahead of the curve of change?

SPE-KSA has partnered with world-leading education technology company Fullbridge to bring a powerful and immersive learning experience to our young professionals.

You will discover and explore the seven most in-demand skills in the market today and take a deep dive into four of the most important:



Cognitive Flexibility



Hyper-Focus



Personal Branding



Sales & Persuasion

Register now. Seats are limited.

Deadline: July 24, 2020 at 11:59 p.m.

Program Starts: August 9, 2020

Program Ends: September 3, 2020

To register, please visit: www.spe-ksa.org/you20

For more information, please contact: yp@spe-ksa.org

or scan the QR code



SPE-KSA WEBINAR SERIES KICK-OFF WITH PROFESSIONAL DEVELOPMENT FOCUS

The SPE-KSA Webinar Series is a new initiative that was launched by the society to enable it to continue delivering on its mission and vision under the current circumstances as well as expand its presence and reach out to its members around the world.

SPE-KSA Technical Programs’ first trio of webinars addressed critical topics on professional development. Prior to launching the first webinar of the series, Technical Programs created a twitter thread on which it published a weekly updated guide. This guide provides links to articles and videos from top, leading educators and to business reviews on Learning Agility and its five main factors (Self-Awareness, Mental Agility, People Agility, Change Agility, and Results Agility). The purpose of this thread is to develop and improve EQ and encourage self-learning. This guide served as a segue to the first trio of webinars that will host talks and presentations by experts in professional development.

Link to tweet: https://twitter.com/spe_ksa/status/1262439714394701825?s=21



HAMAD ALMUQBEL
Business Development & Partnership Manager, Udacity

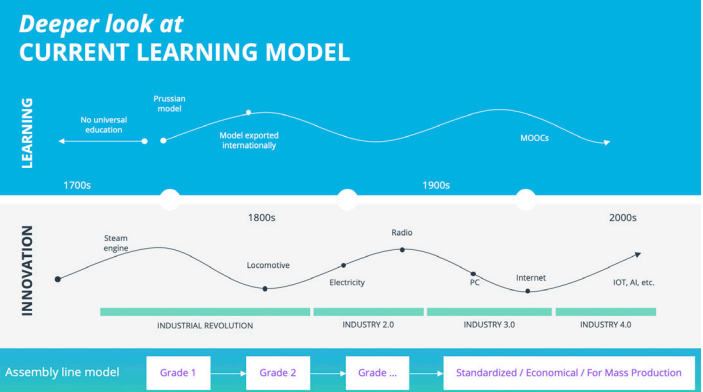
The first webinar SPE-KSA hosted was on April 28th and was titled “The New Path of Lifelong Learning” by Hamad Almuqbel, a Business Development & Partnership Manager at Udacity. In this webinar, Almuqbel discussed how the education system evolved from being strictly classroom-based to being offered by various outlets that empower individuals to take charge of their learning, which is a concept named “Lifelong Learning”.



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Lifelong Learning, as Almuqbel explains, will ensure that individuals are up to date with skills that are high in demand and would help them stay relevant to the current advancements in technology whether it be AI, Automation, or IoT.

The webinar kicked off with a welcoming message from SPE-KSA Chairman of the Executive Board, Abdulaziz Al Sufayan, who commended those attending the webinar and taking charge of their development while staying at home. Another welcoming message by Nassir Abalkhail, Technical Programs Chairperson, was shared with the attendees explaining the Webinar Series initiative and what members should expect.



Unlocking INFINITE POSSIBILITIES

Breaking the emotional barrier...

CURIOSITY
... demonstrates interest with humility. It is different for all of us.

PASSION
... discovering one's own innate talent and the positive reinforcement of it.

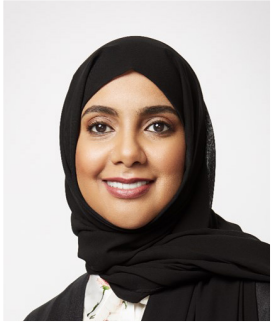
EMPATHY
... opens the mind and heart, allowing one to be an active citizen.

...and getting on the learning curve

BREAK DOWN THE SKILL
... be specific about exactly what you want to learn and break it into smaller pieces.

LEARN TO SELF-CORRECT
... self edit when you are practicing, ...spot the mistake and do something different.

REMOVE BARRIERS
... television, internet etc that come in the way of your 20 hours!



FAAEZA AL KATHEERI
Geoscience Manager, Al Dhafra Petroleum
Member of the ADNOC Gender Balance Committee

On May 7th, SPE-KSA Technical Programs hosted the second webinar titled “Leading Through Crisis” by Faaeza Al Katheeri, a Geoscience Manager at Al Dhafra Petroleum and member of the ADNOC Gender Balance Committee. In this webinar, Al Katheeri discussed leadership traits and qualities required to navigate through the current circumstances. Al Katheeri touched upon effective leadership, especially in crisis, regardless of the position the person is holding within the hierarchy of the organization. Al Katheeri detailed a very important leadership concept that would help all leaders, especially in novel and unprecedented circumstances. This concept, VUCA (Volatility, Uncertainty, Complexity and Ambiguity), is a great tool for characterizing the environment at which organizations find themselves and the leadership required to successfully navigate through it.

Managing Routine Risk			
	Risk Categories	Controllability and Relationship to Strategy	Control Approaches
<div> <div>Low</div> <div>High</div> </div>	Preventable (undesirable) risks	Organizations can prevent or cost-efficiently minimize occurrence of risk. There is no strategic benefit from taking these risks.	Internal control Boundary systems Mission and value statements Internal audit
	I. Strategy execution risks	Taking these risks is essential for achieving strategic returns. Organizations may reduce the likelihood and impact in cost-efficient ways.	Risk identification with risk maps and registers Risk mitigation initiatives and risk owners Resources allocated to fund the risk mitigation initiatives "Chief Worry Officer"
	II. External risks	Organizations cannot control the occurrence of such risks, but may be able to prepare and thus reduce their impact.	Risk "envisionment" via scenarios and war games Contingency planning Insurance and hedging programs (limited use)

Success in a Crisis Depends on Innovation Logic		
MANAGEMENT LOGIC	INNOVATION LOGIC	
Prescribe & control	Enable & learn	
Assumes predictability	Assumes uncertainty	
Simple interdependencies	Complex interdependencies	
Emphasis on efficiency	Emphasis on experimentation	
Clear shared criteria	Multiple competing criteria	
Hierarchical monitoring & support	Peer monitoring & support	



AHMAD AL GHAMDI
People VP, STC group



ABDULRAHMAN ALNAIM
IT Chairperson, SPE-KSA

The third webinar of this trio was on May 13th with Ahmad Al Ghamdi, People Vice President at STC group. Al Ghamdi delivered a webinar titled “Jobs of The Future”. The webinar discussed how the world is changing at a rapid pace and how jobs of today are evolving due to the advancements in technology, the way people and organizations interact, and how these changes will shape the jobs of the future. Al Ghamdi shared relevant studies and surveys conducted by consulting organizations on what current employees should focus on to improve their performance, enhance their understanding of their roles within these technological advancements and increase their relevance.

The 4 worlds of work in 2030



RED WORLD	BLUE WORLD	GREEN WORLD	YELLOW WORLD
Innovation rules The Red World is a perfect incubator for innovation with organizations and individuals racing to give consumers what they want. Digital platforms and technology enable those with winning ideas and allow for specialist and niche profit-makers to flourish. Businesses innovate to create personalization and find new ways to serve these riches. But in a world where ideas rule and innovation outpaces regulation, the risks are high. Today's winning business could be tomorrow's court case.	Corporate is king In the Blue World, capitalism reigns supreme. It's where bigger is better. Organizations see their size and influence as the best way to protect their profit margins against intense competition from their peers and aggressive new market entrants. Corporations grow to such a scale, and exert such influence, that some become more powerful and larger than national economies. It's a world where individual preferences take precedent over social responsibility.	Humans come first This is a world where workers and companies seek out greater meaning and relevance in what they do. Social-first and community businesses find the greatest success and prosper. Crowdfunded capital flows towards ethical and blameless brands. It's a world where workers and consumers search for meaning and relevance from organizations, ones with a social heart. It's a world where humanness is highly valued.	Companies care This is a world where corporate responsibility isn't just a nice-to-have but it's a business imperative. It's characterized by a strong social conscience, a sense of environmental responsibility, a focus on diversity, human rights and a recognition that business has an impact that goes well beyond the financial. Trust is the basic currency underpinning business and employment. Companies have to place their societal purpose at the heart of their commercial strategy.

stc

Skills for the future

- 1 Emotional Intelligence
- 2 Critical Thinking
- 3 Creativity
- 4 Decision Making
- 5 Growth Mindset
- 6 Change Management
- 7 Complex Problem Solving
- 8 People Management
- 9 Cognitive Flexibility

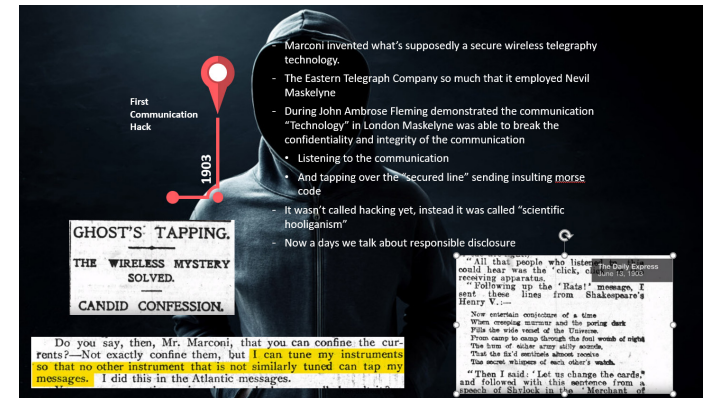
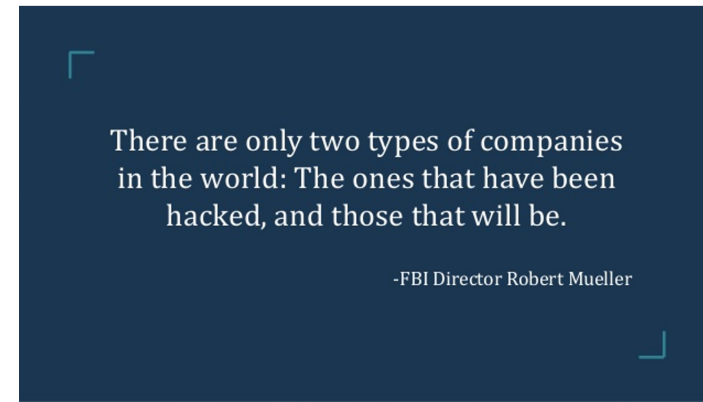
stc

Building on the success of the SPE-KSA Webinar series initiative, the SPE-KSA Information Technology team hosted the final webinar on May 18th titled “Think Like a Hacker”. The webinar was presented by the SPE-KSA IT Chair Abdulrahman Alnaim.

In this webinar, Alnaim introduced information security and the economics of the digital world. He then shared the history of Cybersecurity attacks, starting with the 1903 incident when Nevil Maskelyne hacked into Marconi's radio transmission, all the way to Travelex's breach in 2020 through the Turing's bombe cracking of the enigma, Kevin Mitnick, viruses, and the Yahoo! 3 billion users data breach. After that, Alnaim delved into the way hackers think, breaking down the steps followed by adversaries to conduct a targeted attack.

This topic is important especially in this day and age as we live in a world that's going digital with cybersecurity professionals who are in a never-ending race against adversaries. The risk at hand is that we have to be right every time while the hacker has to be right just once. This webinar challenged attendees to adopt a proactive cyber security skill to become better prepared and change their state of mind to start thinking more like hackers in order to identify weaknesses that can be exploited and apply the correct controls and measures to protect their information systems.

Special thanks to Nassir Abalkhail, SPE-KSA Technical Program Chair for hosting the session.



The four webinars witnessed an aggregate attendance of 410 who benefited from the great content shared by our expert presenters and were able to interact by asking questions at the end of the presentations.

For your convenience and benefit, these webinars have been made available on YouTube and can accessed from the safety and comfort of your homes.

The New Path of Lifelong Learning

<https://youtu.be/10QSQWKly4o>



Leading Through Crisis

<https://youtu.be/AAz3LRzrWY8>



Jobs of The Future

<https://youtu.be/kkZCum2kDkI>



Think Like a Hacker

<https://www.youtube.com/watch?v=OSO5GCWGMAU>



Written By: Nassir Abalkhail

Event Lead: Fay AlMutlaq

SPE-KSA TECHNICAL PROGRAMS' FIRST VIRTUAL COURSE



JUSTIN GREEN
Damage Consultant, Premier
Oilfield Group

In its aim to continue SPE-KSA's mission of knowledge sharing and dissemination and to update members on the latest innovations and advancements in the industry, Technical Programs held its first Virtual Course. The virtual course was titled "Improve Drilling and Completion Decisions Through Advanced Laboratory Evaluation and Visualization Techniques" by Justin Green, a Formation Damage Consultant at Premier Oilfield Group.

In this virtual course, Justin discussed the techniques and applications available to investigate and further understand the near-wellbore conditions to be able to design field compatible completion fluids. A few case studies were discussed, along with how in-lab coreflood results helped improve the completion fluid program design, optimizing the cost and improving well deliverability.

The virtual course, held on May 11th, was hosted securely on the Zoom platform and was attended by 79 people who interacted with the presenter through comments and questions.

The virtual course can be viewed, on-demand using the following QR code:

https://youtu.be/uUsupxY_qT4



Reservoir-conditions Simulator



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خط دعم العنف المنزلي لمركز جونز هوبكنز أرامكو الطبي (جاها)

013 870-1920

من الأحد إلى الخميس. من الساعة 9 صباحًا حتى 3 عصرًا خلال شهر رمضان، ومن 7 صباحًا إلى 3 عصرًا خلال ساعات الخدمة العادية.

موظفي جاها المدربون بشكل مهني موجودون لتقديم الدعم والمشورة للأشخاص الذين يعانون من حالات العنف المنزلي.

خط دعم العنف المنزلي لجاها هو خدمة مؤقتة، تم إنشاؤها خلال حالة الطوارئ الصحية العامة الحالية. وقد أدى الضغط والقيود الإضافية التي تسبب بها كوفيد-19 إلى زيادة في حالات العنف المنزلي.

مركز جونز هوبكنز

أرامكو الطبي

Johns Hopkins

Aramco Healthcare

800-305-4444 | www.jhah.com

JHAH Domestic Abuse Support Line

013 870-1920

9 a.m. to 3 p.m., Ramadan hours and 7 a.m. to 3 p.m. regular hours from Sunday to Thursday.

Professionally trained JHAH staff are available to offer support and counselling to people experiencing domestic abuse.

The JHAH Domestic Abuse Support Line is a provisional service, established during the current public health emergency. The stress and restrictions triggered by COVID-19 have resulted in an increase in domestic abuse and violence.

مركز جونز هوبكنز

أرامكو الطبي

Johns Hopkins

Aramco Healthcare

800-305-4444 | www.jhah.com

نحن نهتم
We Care

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We Care

SCHOOL VISITS

SPE-KSA Student Outreach "East to West"
Mission Resulted in Section
Winning 2nd Place in the International
SPE Students Ambassador Lecturer Program

February-March 2020

During February and March of 2020, the Student Outreach team visited several schools across the Kingdom such as AlAnjal schools and AlKefah schools in AlAhsa, and AlManarat and Dar Alfikr schools in Jeddah, to shed light on the future of the energy industry and the roles of Petroleum Engineers. The engineers also shared their experiences studying for a career in oil and gas, and the different career paths in the industry. Over 350 high school students attended the sessions and were intrigued by the opportunities offered in the energy industry and the role of petroleum engineers in meeting the global energy demand.

In the past year, the Student Outreach Team was able to engage more than 10,000 students in 6 cities across the Kingdom. This resulted in SPE-KSA section to be awarded 2nd place prize in the Best International SPE Students Ambassador program.

We would like to thank all of our volunteers for continuing to inspire the Kingdom's youth and we look forward to continuing with the program in the coming school year.

Written By: Sarah AlAmer



ENERGY WEEK

ENERGY WEEK at Dhahran Ahliyya Schools

February-March 2020

In celebration of energy week, the Student Outreach team presented an "Energy in Our Life" talk where they addressed the importance of environmental sustainability to over 200 elementary students at Dhahran Ahliyya Schools. The students astonished us with their active engagement, curiosity and profound questions.



Written By: Sarah AlAmer

CHECK OUT STUDENT OUTREACH'S NEW LOGO

"Our new logo represents Student Outreach's mission to provide support and guidance to SPE-KSA's university chapters and schools all over the Kingdom and link students with energy."



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MAKKAH VISIT

Making a Difference for Young Generations Forum

February 6th and March 1st, 2020

SPE-KSA traveled to Makkah to participate in the “Making a Difference for Young Generations Forum” that took place on February 6th, 2020 and attracted 1200 students. During one of the sessions, Engineer Bayan Wasfi represented the SPE-KSA section by sharing the benefits of becoming a member, which range from enhancing technical knowledge to connecting with industry experts. Additionally, she also shared her own experience volunteering in the section as an Energy4Me certified trainer. Also, the young audience was particularly interested in learning about Bayan’s experience as a female engineer from the Western Province working in the heart of the Kingdom’s Oil and Gas industry in the Eastern Province.

In a second visit to Makkah, the SPE-KSA section also participated in a seminar titled “Innovation & Technology in Light of Vision 2030” that attracted 400 students. The Gifted Administration Office in Makkah organized this seminar as part of the National Week of Innovation in March, 2020. Geologist Yara Garoot talked to the students about opportunities for innovation in our industry, and the role of SPE-KSA in supporting and promoting a culture of innovation. A total of 1600 students attended these two events and thoroughly benefited from the experience.

Written By: Bayan Wasfi & Rabab Al-Meshikhes



PRINCE MOHAMMED BIN FAHAD UNIVERSITY

Visits Saudi Petroleum Services Polytechnic Institute

March 25th, 2020

As part of SPE-KSA’s continued efforts to link the professional and academic communities, the Student Outreach team worked with Prince Mohammed bin Fahad University’s SPE section to organize a trip to the Saudi Petroleum Polytechnic Institute (SPSP) facility. The trip had a total of 24 attendees including SPE Chapter members, PMU Faculty, and SPE Student Outreach representatives.

PMU’s engineering students’ visit to the SPSP training facility allowed them to gain an immersive hands-on experience, learn about drilling and tour the facility. During which, the students were divided into two groups for guided tours around the facility by Aberdeen’s Drilling Engineers. The first part of the trip was touring the drilling rig. The students got to learn about the components of a drilling rig, from the objective of each component to how it all integrates into the drilling process. The engineering students had the unique opportunity to ask questions and listen to experts as they walked them through their day to day operations. Next, the groups visited the drilling simulator that simulated the rig control room in drilling operations. The students had the chance to sit in the driver’s seat and make real time decisions in different drilling scenarios. Finally, the group had a lively discussion with SPSP’s president about what it means to be an engineer and how they can contribute to society in an effective way.

Feedback from the students in majors such as Mechanical Engineering was that they felt a disconnection between their school curriculum and their desired careers in the energy industry. This was an incredible opportunity for them to see how their majors can tie in to the drilling operations and its success.

Written By: Heba Alsoqair & Meshal Alshalan



TerraSphere

High-definition dual-imaging-while-drilling service

Dual imaging in oil-based mud systems

Real-time resistivity and ultrasonic imaging in one collar

Subtle subsurface variations in high detail

Schlumberger

COLLABORATING WITH COMMUNITIES TO CREATE PPE

Supporting university initiatives to develop innovative solutions for local communities during the COVID-19 pandemic

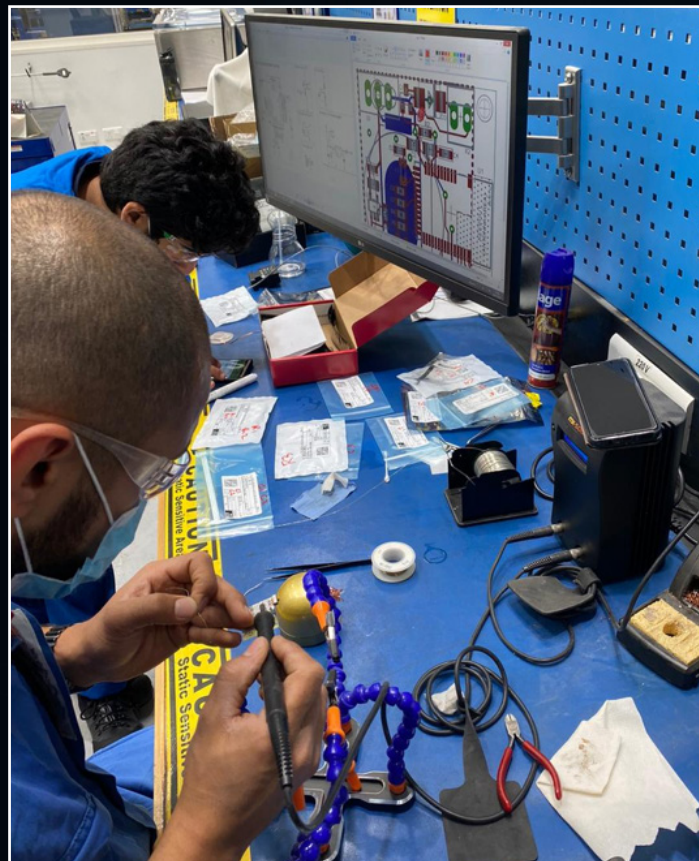
The Schlumberger university relations program helps to develop leaders in science, technology, engineering, and mathematics (STEM) and to foster collaboration and innovation across academic communities worldwide. To address some of the challenges in response to COVID-19, Schlumberger has collaborated with the Entrepreneurship Institute at the King Fahd University of Petroleum and Minerals in Saudi Arabia and with startups to develop innovative personal protective equipment (PPE) and technological innovations to support local communities.

To learn more, click on the link or scan the QR code
<https://www.youtube.com/watch?v=U3sazkkus48>

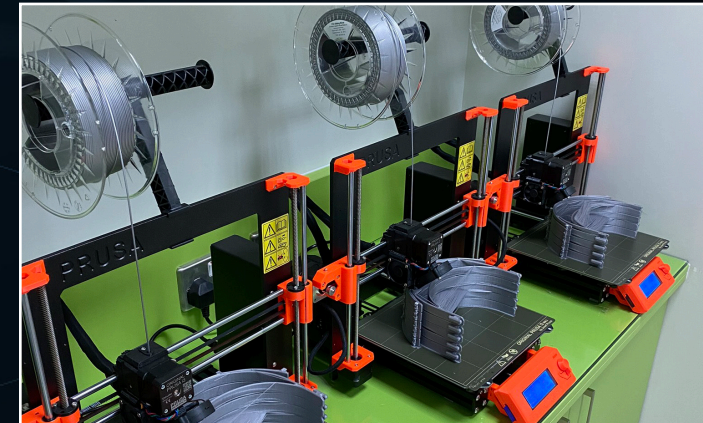


The pioneering initiatives by the entrepreneurs at the institute include:

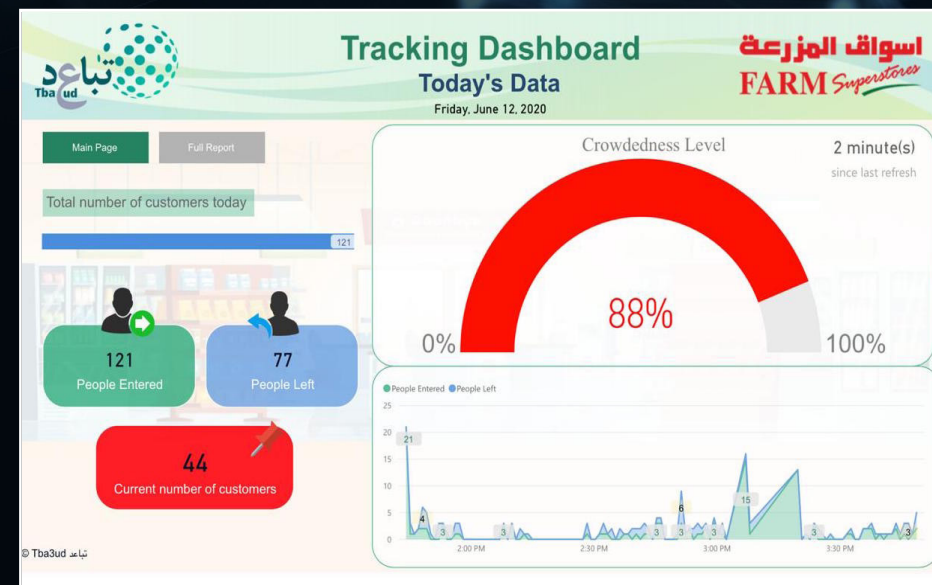
1. Testing and assembling open source ventilators;



2 Producing face shields using locally sourced manufactured material and 3D printed components for donation to frontline responders;



3. Developing a data driven crowd management and social distancing app—rolled out in a local supermarket chain, the app calculates how many people are located in the building and produces a maximum capacity congestion report;



Schlumberger

"This collaboration is an outcome of the continuous engagement between Schlumberger and KFUPM. It also demonstrates our commitment to the local content and the In-Kingdom Total Value Add (IKTVA) program by developing local talent and manufacturing.

The initiative supports STEM and at the same time helps drive economic growth," says Ziad Jeha, President, Schlumberger, Saudi Arabia and Bahrain, "It represents our corporate purpose, which is about creating together amazing technologies for the benefit of all."



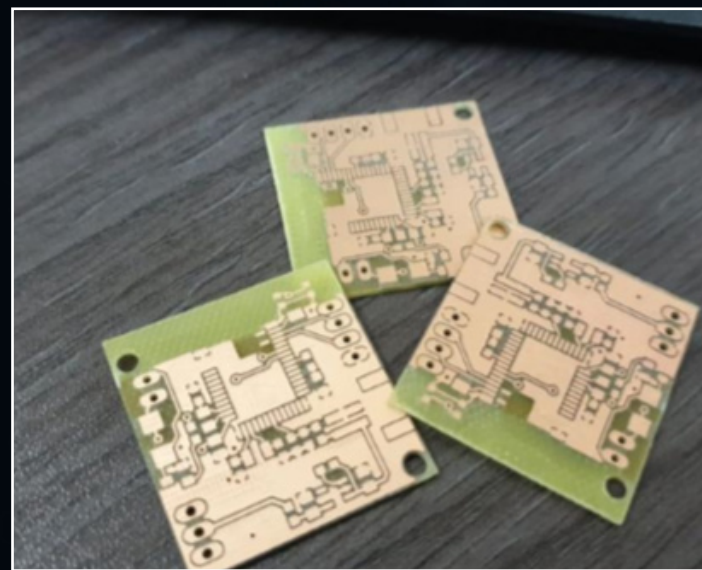
4. Designing a wearable device to promote social distancing awareness through vibration for use in densely populated locations such as schools or businesses with the capability to be further used for contact tracing and adherence to social distancing regulations.



A steering committee comprised of university faculty members and Schlumberger subject matter experts supervised the projects. Committee member Meshary Al-Ayed, Operations Systems Manager at Schlumberger who also serves as the company's university ambassador, notes that "We have a long-standing commitment to support STEM innovation with academic partners. These innovations developed by the students at the Entrepreneurship Institute are an important contribution to help local communities minimize the impact of COVID-19."

Engineers at Schlumberger also shared their knowledge and expertise with the students, for example, by supporting the coding process of the front-end application of the crowd management app and contributing in the assembly of the face shields and developing the prototype social distancing devices.

In addition, employee volunteers collaborated with the entrepreneurs on the supply chain for the procurement of materials, volunteered to assemble face shields and provided overall new product development guidance as this is a cornerstone of Schlumberger expertise.



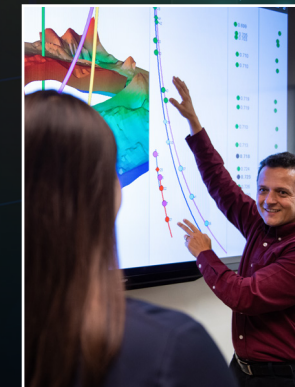
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Schlumberger

E4ME VIRTUAL

Energy4Me Virtual Competition for Students

April-May, 2020

To educate young students on some fundamental concepts in the energy and oil and gas industry, the student outreach team created videos of four different experiments as part of the Energy4Me training series. Four SPE-KSA certified Energy4Me trainers and Young Professionals conducted the experiments in Arabic with English subtitles to appeal to a wider audience and to make a bigger impact. The overwhelmingly positive responses from members of the local community, Saudis abroad, and international students was a true testament to the success of this initiative.

The videos present simple science experiments to educate parents and students on important scientific concepts during the lockdown. The experiments were also designed to be carried out using materials that can be found in every home. The weekly videos included a competition to encourage participants to watch and perform the experiments from the comfort of their homes. The students were also tested on their knowledge by answering a series of questions at the end of the video. Winners were selected based on a review of the participants' submissions, who were awarded gift cards for educational materials.

SPE-KSA trained and certified 20 of its members to conduct Energy4Me experiments. The certified facilitators trained teachers and students virtually and in physical classrooms with the mission to spark the students' interests in the energy industry.

Written By: Hala Alwagdani & Rabab Al-Meshikhes



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WOMEN IN DATA SCIENCE (WIDS)

A Virtual Collaboration Event

June, 2020

As part of SPE-KSA's continued efforts to link professionals and the student community with digital transformation in the energy sector, the student outreach team sponsored and participated in the Women in Data Science KSA online event. Women in Data Science (WiDS) is a Stanford University initiative that aims to inspire and educate data scientists worldwide, regardless of gender, and to support women in the field. WiDS hosts a global conference, with 150+ regional events worldwide and we are happy that it has a home in Saudi Arabia.

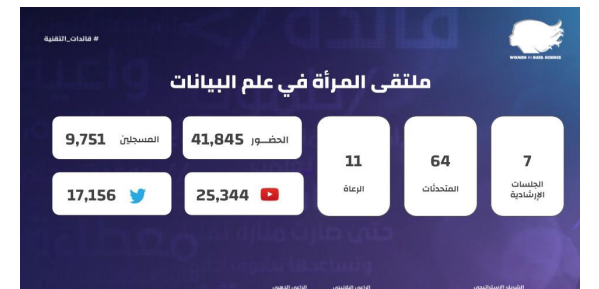
The event was spread over eight days where it accommodated a total of 42,000 attendees. WiDS covered the role of data science in business, health, energy, the Hajj, and the Umrah in six different cities in the Kingdom including the Eastern Province. And for the first time, it was hosted by SPE-KSA.

The Student Outreach team hosted day 5 of the event under the subject "Data Science in the Energy Sector". Seba Almaghlouth from Saudi Aramco and Amira Mohsen from Schlumberger presented two sessions about the journey of data in the oil business and cases demonstrating the new age of oil production using data.

On the day devoted to "Data Science in the Energy Sector", a total of 2,900 online participants were registered. Dr. Ahmed Al Theneyan, Deputy Minister at the Ministry of Communications and Information Technology, thanked SPE-KSA for its outstanding support and sponsorship of the event.

We are proud to have sponsored such an event to empower students, women, and data scientists, along with the Ministry of Communications and Information Technology, a strategic partner of WiDS Saudi Arabia.

Written By: Seba Almaghlouth



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SPE – KAUST STUDENT CHAPTER

Recipient of SPE's Excellence Award



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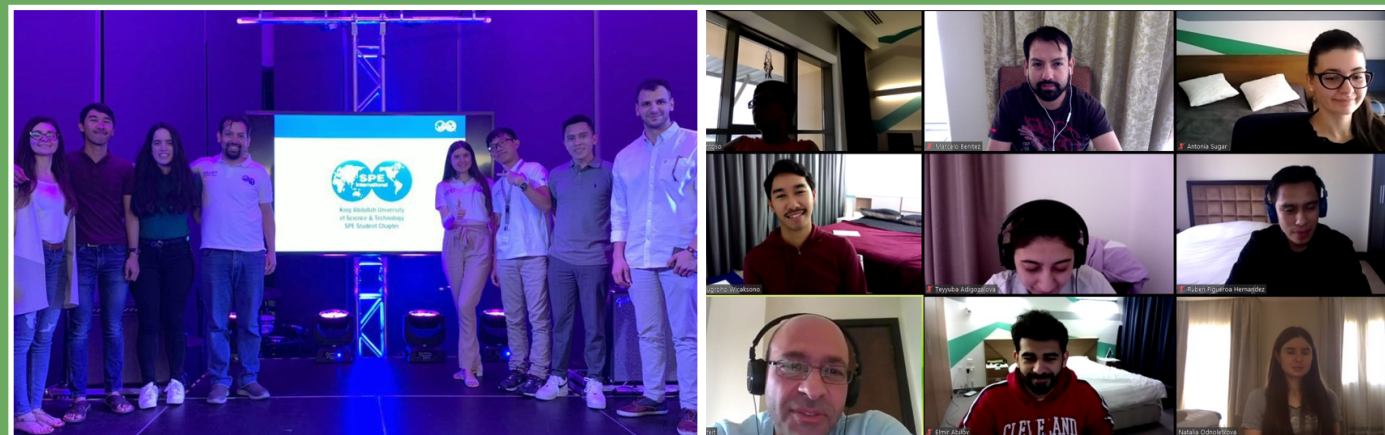
The KAUST SPE Student Chapter has faced both good and hard times, representing a reflection of the Oil & Gas industry endeavor. Back in 2015, after winning the SPE Outstanding Chapter award for the second consecutive year, the Chapter went through challenging times, and activity slow-down followed the graduation of many key members. With only post-graduate education at KAUST, it was a challenge to sustain and grow the Chapter. The establishment of the Ali Al-Naimi Petroleum Research Center (ANPERC) at KAUST represented a turning point for the Chapter. With the start of ANPERC, we have been able to revive and regrow the Chapter with dedicated and ambitious students. Today, our graduate students group reached a record number of members since its foundation, including about 10% of KAUST's students. We are proud to leverage diversity in the Chapter's members and board, and embrace the role of women with almost 50% female representation, including in the leading positions of President and Vice President.

In 2019 and 2020, we were pleased to receive the Excellence Awards, our fourth award since the creation of the Chapter in 2011.

KAUST SPE Student Chapter is an enabler for member students to enrich their fundamental knowledge by participating in frequently organized technical webinars, soft-skills events, as well as strengthen their social connections by taking part in our social events. Through the continuous commitment of students and support of faculty, the Chapter has recorded achievements in the MENA region. Our team qualified for the International Petro-Bowl Championship for two consecutive years, proudly reaching the Elite 8 in 2018. On the grounds of these achievements and deep-rooted motivation, all our members will continue to thrive towards success in the following years. These achievements would not have possible without the endless support and encouragement from KAUST Professors, Students and SPE's Kingdom of Saudi Arabia Section.

Members of the Board 2020:

Natalia Odnoletkova (President), Antonia Sugar (Vice-president), Michael Oyinloye (Secretary), Marcelo Benitez (Treasurer), Teyyuba Adigozalova (Media's Officer), Elmir Abilov (Membership's Officer), Ruben Figueroa and Ryan Ryan Santoso (Petrobowl's Officers), Akbar Nugroho (Support's Officer)



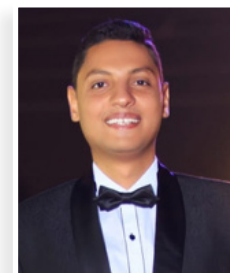
from left Antonia, Akbar, Daniela, Marcelo, Natalia, Ryan, Ruben and Saleh (Board Members 2019 and 2020)

from left Ryan, Marcelo, Antonia, Akbar, Teyyuba, Ruben, Prof. Hussein Hoteit (Faculty Advisor), Elmir and Natalia (SPE-KAUST President 2020)

SPE - KFUPM STUDENT CHAPTER

Winners in the SPE Paper Contest for MENA

The past year's activities by CPG (College of Petroleum Engineering & Geosciences) and SPE-KFUPM were centered on bridging the gap between academia and industry, with programs geared towards empowering student members with the skills required in the industry in the face of technological advancements such as data analytics and artificial intelligence. The year started with a meeting to discuss ways and strategies to enhance the partnership between the departments and the industry. This helped in strategizing the programs to address the needs of the industry and better equip Young Professionals. Programs included technical sessions, software training, soft skills sessions, and participation in startup competitions, both at local and the grand finale. This shows how better equipped CPG members are, not only to solve industry problems via research, but also to come up with the start-up of their own. Therefore, the programs enriched student members and created an enabling environment for growth as in line with SPE's vision. Lastly and most recently, in the just-concluded SPE virtual regional student paper contest for the Middle East and North Africa region, both Ibrahim Gomaa and Amjed Hassan came first and second place in the M.Sc. And Ph.D. categories, respectively. The title of Mr. Ibrahim's presentation was "Sandstone Acidizing using In-Situ Generated Hydrofluoric Acid with The Aid of Thermochemical Fluids", whereas that of Mr. Amjed was "Enhancing the Hydrocarbon Productivity for Unconventional Shale Gas Reservoirs Using Thermochemical". These are projects aimed to solve daring industry problems and it is an honor that SPE recognized excellence in these research projects. This is a feat achieved by industry-academia integration.



"Very happy and proud to win the first SPE virtual paper contest. Such events add more value to the scientific research, enhance its quality, and enrich student competences. Looking forward to raising the Middle East name in the finals!" - Ibrahim Gomaa



"The contest was so challenging with high-quality research presented. It was a great experience to present my work in front of 6 judges from different disciplines in the O&G industry." – Amjed Hassan

It is believed that with preparation comes great success! So, it is a CPG tradition to mockup competitions all year that will enhance students' abilities and prepare them for global contests.

Written By: Mohammed Saleh AlQuraishi – SPE KFUPM President
Isah Mohammed – KFUPM Faculty Liaison



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GREENING THE KINGDOM

Afforestation Activity

February, 2020

Greening the Kingdom Wrap Up

The Trips & Social Activities team carried on with the Afforestation initiative that was launched in 2019. The last of the company-led afforestation campaigns were coordinated by the team in collaboration with the companies and the Municipality. They were conducted as follows:

- On February 8th, JESCO conducted a campaign in Saihat and planted a total of 100 seedlings
- On February 18th, Halliburton conducted a campaign in Jubail and planted a total of 100 seedlings

With these two activities, the T&SA team wrapped up the afforestation initiative. The team, volunteers and various companies' employees and their dependents have collectively planted a total of 2,240 seedlings.

Written By: Arwa AlHilal

Event Lead: Suliman Al-Gosaibi



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HAIL TRIP

February 13th – 15th, 2019

During the period between February 13th and February 15th, the T&SA team organized a trip to Hail in the Northern region of Saudi Arabia. The aim was to discover the city's ancient historical treasures and Saudi Arabia's archaeology. The trip involved a total of 13 participants from different age groups and nationalities.

The team arrived to Hail on February 13th. After settling in the hotel and having lunch, they drove to Faid historical city, which is an underground aqueduct from the early Islamic era. After a tour of the whole city, the team hiked into the heart of Taba volcano crater, one of the White volcanos of Harrat Khayber, to enjoy the sunset and a traditional dinner later that evening.

On the second day, the team went to Aja Rosy Mountain, where they went on a joyous hike and enjoyed nature in a traditional Arabian tent. The team then went back to the hotel to have lunch and rest before heading to Jubbah, which is a UNESCO site known to have the best and most ancient examples of Neolithic rock art. The last stop on that day was AlNayef museum.

On the last day of the trip, the team visited the traditional market in Hail, which marked the end of this pleasant trip to one of the most glorious Saudi Arabian historic destinations, known for its beauty and traditional Saudi Arabian hospitality.

Written By: Arwa AlHilal

Event Lead: Abdulaziz Alaqeel



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FAMILY FUN DAY

February 29th, 2020

On February 29th, the Trips and Social Activities team organized its annual Family Fun Day at Makan Camp. This year, the team decided to hold the event under the Saudi Arabian traditional theme and targeted all age groups to ensure a delightful time for all family members. The event lasted 7 hours, from the afternoon until the evening. Guests enjoyed a variety of activities ranging from individual activities such as horse and camel back rides, motor bike rides, face painting, photoshoots with the Saudi Falconer and henna art, to group activities such as board games, sack races and volleyball. The day ended with a traditional dinner and an impressive show performed by a traditional Saudi Arabian band. A total of 90 guests joined that memorable experience in the middle of the desert.

Written By: Arwa AlHilal

Event Lead: Abdulaziz Al-Aqeel



RENOVATION OF UNDER PRIVILEGED FAMILIES' HOMES

March 15th, 2020

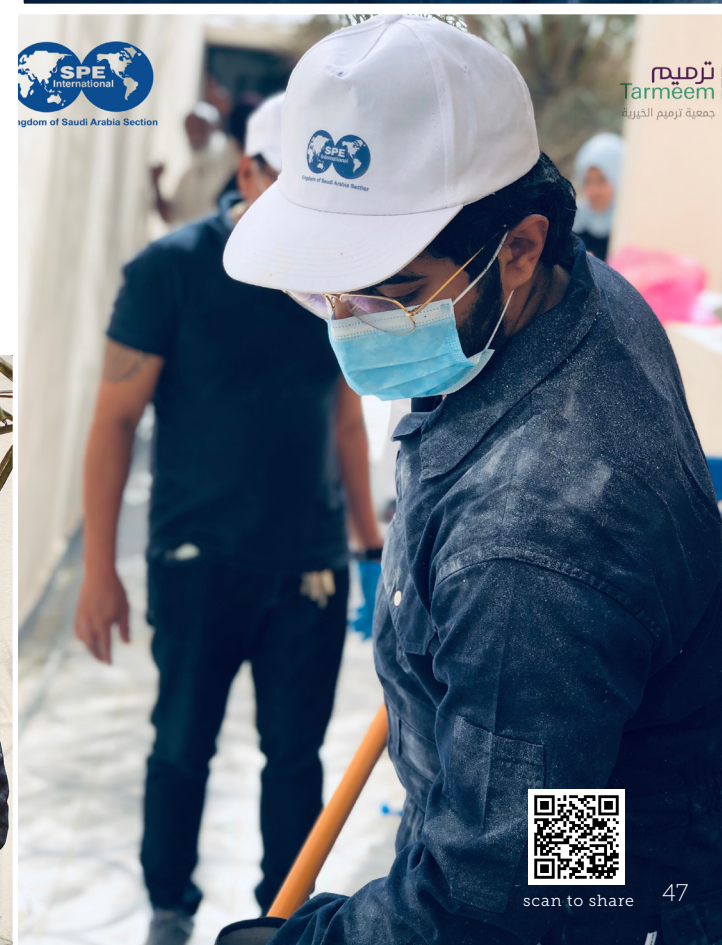
On March 15th, 5 members from the Trips and Social Activities team collaborated with Tarmeen Charity Organization in renovating an underprivileged family's home.

SPE-KSA members handled painting the outer fence of the house under renovation. The activity began with a brief training session on the basics of painting as well as safety precautions.

The team enjoyed this activity and found the experience to be rewarding. Their efforts were very much appreciated by Tarmeen organization and the owners of the renovated house.

Written By: Arwa AlHilal

Event Lead: Badriah Al-Harbi



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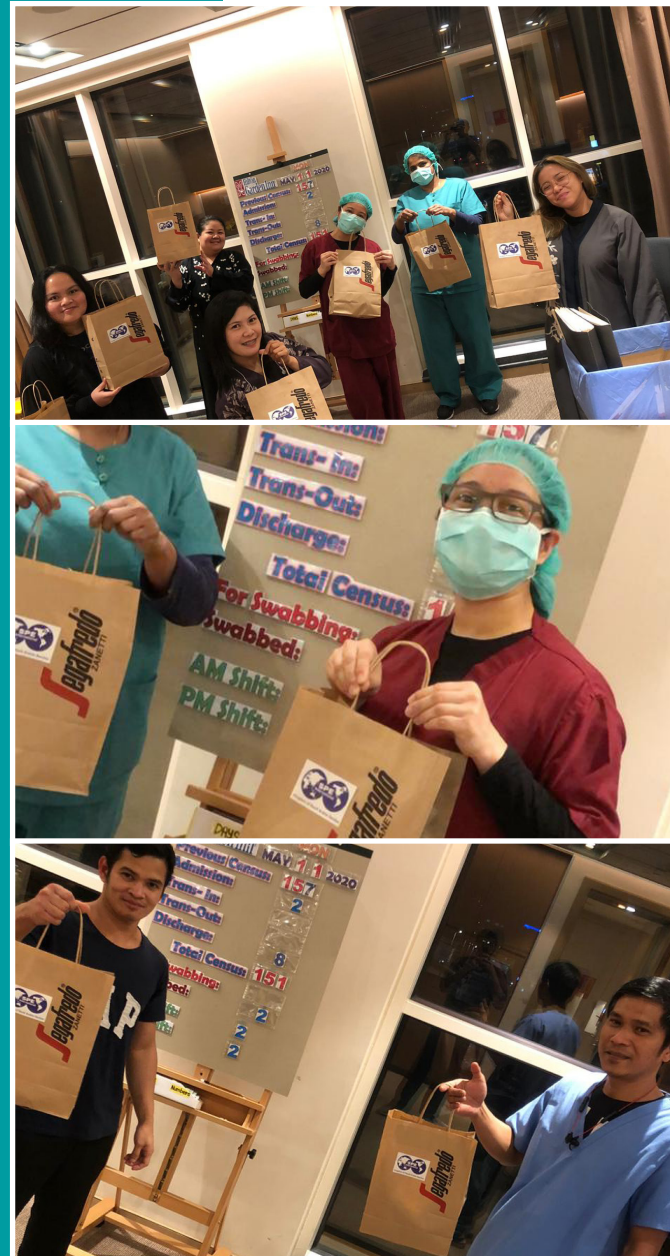
SUPPORTING MEDICAL STAFF AT A QUARANTINE FACILITY

April-May, 2020

Healthcare workers have been working relentlessly since the beginning of the COVID-19 outbreak in our Kingdom and around the world. In its strive to constantly serve our community in any circumstance, the Trips and Social Activities team supported the medical staff at one of the quarantine facilities, Hilton Garden, by providing and distributing Iftar meals, snacks and coffee. This outreach was conducted twice a week throughout the Holy month of Ramadan.

Written By: Arwa AlHilal

Event Lead: Abdullah Al-Sabti



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LAPTOP/PC DONATION CAMPAIGN

May, 2020

A global shift to virtual education is underway as the world tries to combat the spread of COVID-19. However, this sudden, unexpected shift left many underprivileged families challenged and unable to secure sufficient electronic devices that their children need to continue their education. In light of this challenge, the Trips and Social Activities team launched a campaign to donate used personal devices, whether functional or not. Donors were spread across all cities in the Eastern Region and T&SA took it upon themselves to handle the pick-up of the devices from the donors.

The refurbishment and distribution of the donated devices to the targeted families were handled by Ertiq organization.

Written By: Arwa AlHilal

Event Lead: Mohammad Al-Mishkhas



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With strength and courage, resilience can help you bounce back



Laya AlKhatib, M.S.

Senior Communications Professional,
Johns Hopkins Aramco Healthcare

With the outbreak of COVID-19, it's easy to lose ourselves with all the worry, anxiety, fear and other different emotions we are experiencing during this time. Our lives have been altered in many ways, leading most of us to increased feelings of anxiety. Getting used to the new normal and adhering to all the preventive guidelines to keep yourself, your family, and your community safe may take a toll on your overall well-being.

While these are demanding times, we are fortunate that there are ways for us to deal with these challenges. Resilience is defined as the ability to flexibly adapt to adverse, challenging, or traumatic life events. And, in the face of a pandemic, resilience is needed now more than ever.

How do I build my resilience?

When people think of resilience they think of finding the strength to be patient and calm while accepting the change happening around them, but that's only part of the story. When working on strengthening your resilience, you need to be mindful of your physical, mental, and social health. With our following tips, you'll be a force to be reckoned with in the face of adversity:

Focus on your physical health

Stress not only affects your mental well-being but can also affect your immune system. Build your resilience by strengthening yourself physically through:

- **Exercising:** Incorporate at least 30 minutes of physical activity in your daily life. Work out to an online class or use any exercise equipment you have at home to keep your body fit and healthy.

- **Eating a healthy diet:** Consume nutritious meals and include fruits and vegetables in your daily diet. Don't feed your stress with sugary or fried foods and cut back on caffeine.

- **Getting enough sleep:** Adults need seven to nine hours of sleep, and a good night's sleep can give you the boost you need to better manage your stress.

Staying hydrated: If you're stressed, you're probably

- not remembering to drink enough water. Try to stay hydrated by drinking at least 8-13 cups of water a day.

Take care of your mental and social wellbeing

- **Stay connected:** During the COVID-19 pandemic, it is important to keep your distance but also to stay (virtually) close. Feelings of loneliness and isolation that have increased during the COVID-19 outbreak can lead to depression. In the age of connectivity, physical distancing doesn't mean disconnecting from loved ones. Stay responsibly connected by connecting with your family and friends via phone, text, or email, hosting a virtual game night, spending meaningful technology free time with the people in your household, connecting with yourself by practicing mindfulness, meditating, or practicing yoga.

- **Remain mentally active:** Learn a new hobby that excites you or a new language and read books you've been meaning to read but haven't had the time to. Play mentally stimulating board games with the people in your household, or work on a puzzle together. Take an online course on a topic that interests you.

- **Address your emotions:** If you are feeling overwhelmed or anxious, address those emotions by talking to someone about them, or writing them in

a daily journal. If feelings of depression and anxiety persist, seek professional support by scheduling an online video visit appointment with a JHAH Psychiatrist through your MyChart app.

- **Silence the noise:** If you find yourself excessively watching the news and reading COVID-19 news online, minimize the time you spend doing that. Also, don't be a victim to rumors and, instead, seek trusted sources like our website, JHAH.com, to find reliable information

- **Take deep breaths:** Deep breathing can help calm your central nervous system and decrease the feeling of general discomfort and panic. Try our 2-to-1 breathing technique (included at the end of this article) at least once a day to sustain and build your resilience, while calming your nerves.

- **Nurture your child's resilience:** Remember that this time is also difficult for your children. Don't leave them in the dark, explain the changes in their lives, give them time and attention, listen and comfort them, and address their concerns. Also, try to involve them in fun activities at home, and set a schedule or routine for them to give them a sense of normalcy.

Read the "My Hero is You" to your child: "My Hero is You" is a book written for children around the world affected by the COVID-19 pandemic. "My Hero is You" should be read by a parent, caregiver or teacher alongside a child or a small group of children. It is not encouraged for children to read this book independently without the support of a parent, caregiver or teacher. The supplementary guide called "Actions for Heroes" (to be published later) offers support for addressing topics related to COVID-19, helping children manage feelings and emotions, as well as supplementary activities for children to do based on the book.



Where can you find a trusted source for COVID-19 information and preventive measures?

For more guidelines on how to stay safe during the COVID-19 outbreak, including guidelines on hand hygiene, grocery shopping, safely receiving your groceries at home, face masks, office hygiene and more, visit our JHAH COVID-19 website page <https://www.jhah.com/en/new-coronavirus>.

How can you cope with isolation and loneliness during home isolation or quarantine?

A period of home isolation or quarantine may be absolutely necessary for infection prevention; however you should recognize that it will disrupt your regular routine, and may affect your mental well-being. If you are feeling lonely or isolated during this difficult time, follow our steps below to help you cope:

- **Identify feelings of loneliness:** Learn to recognize feelings of loneliness and remind yourself of people who can connect with you.

- **Alternative activities:** Focus on activities that you can do on your own, such as keeping a journal, reading a book, watching television and doing some physical and mental exercises.

- **Hope:** Establish a sense of hope through inspirational stories.

- **Problem solving:** Identify the problems you would like to work on by writing them down and thinking of several potential solutions.

- **Additional help:** Seek additional help by talking to a supportive friend, a trusted family member, your primary care physician, or call the JHAH Emotional Help Line 8:00 a.m. to 3:00 p.m., Sunday to Thursday at 013-870-1919.

For more information on how to maintain your mental wellbeing during the COVID-19 outbreak, download our online Mental Health Tool Kit <https://www.jhah.com/en/new-coronavirus/mental-health-tool-kit>





Top five immune-boosting foods

The next time you're preparing a meal or having a snack, try to incorporate some of these foods to boost your immunity and stay healthy:

Citrus fruits: Citrus fruits like grapefruit, oranges, lemons, and limes are packed with vitamin C which may boost your immunity and lower your risk of heart disease and chronic diseases.

Broccoli: Broccoli contains fiber, calcium, potassium, magnesium as well as vitamins A, E, C, K. With its anti-inflammatory properties, broccoli is a great food to add raw to salads or cooked with your meals.

Garlic: Garlic contains Vitamin B6, Vitamin C, Selenium, Fiber, and Manganese and is rich in antioxidants and has inflammatory and immune-boosting properties.

Ginger: Ginger has immune-boosting and anti-inflammatory properties and can also help with your digestion.

Spinach: Spinach has a high amount of vitamins A and C, iron, magnesium, fiber and folate. Eating spinach can help reduce the oxidative stress in your body.



Healthy Recipe

Mango and Ginger Smoothie

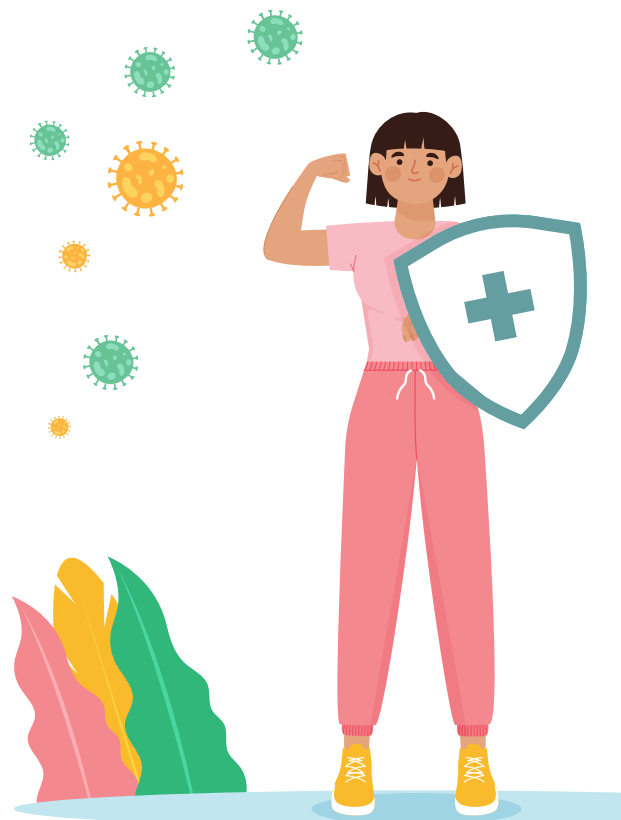
Boost your immunity with a healthy smoothie packed with vitamins and nutrients that is also easy to prepare.

Ingredients:

- 3/4 inch peeled fresh ginger
- 2 tablespoons of celery
- 3/4 cups of spinach
- 1/2 peeled cucumber
- 1 1/2 cups of mango
- 2 tablespoons of fresh parsley
- 1 cup of water
- 1/2 of a peeled and seeded lemon

Instructions:

1. Using a blender, blend parsley, celery and water until smooth.
2. Next, add the remaining ingredients and blend again.
3. Once fully blended, pour the smoothie into a glass and enjoy your refreshing drink



The 2-to-1 Breathing Technique

This is a self-calming technique you can practice at any time to help you manage your feelings and promote relaxation.

The 2-to-1 breathing technique activates a relaxation response in your body's para-sympathetic nervous system. It is called 2-to-1 because you exhale twice as long as you inhale.

Step 1: Find a quiet, comfortable location where you feel safe.

Step 2: Settle into a comfortable seated or reclining position. (You may wish to remove your shoes and loosen tight clothing.)

Step 3: Put one hand on your chest and the other on your stomach.

Step 4: Close your eyes, and focus on your breathing.

Step 5: To get started, take a deep breath, inhaling through your nose in a slow, steady manner with a silent count of four:

(1- 2- 3- 4-)

You should feel your chest and stomach rise as you breathe in.

Step 6: Then, exhale slowly and steadily through your nose with a silent count of eight:

(1- 2- 3- 4- 5- 6- 7- 8-)

Step 7: Repeat the deep breathing two more times, inhaling slowly through your nose with a silent count of four and exhaling slowly through your nose with a silent count of eight.



ABUNDANCE OF PPE



Written by: **Siby V. Abraham, CFA** ®

In his book "The Wisdom of Finance: Discovering HUMANITY in the world of RISK and RETURN", American economist and professor at the Mizuho Financial Group of Finance at Harvard Business School and Harvard Law School, Mihir A. Desai attempts to bridge the field of finance with other business disciplines.

Business disciplines use various processes to collectively achieve a purpose, or more broadly, a "strategy". A strategy to become a leading producer of a widget requires multiple business disciplines to collaborate and manage RISKS in various phases such as design and production (Engineering & Finance), customer acquisition (Marketing & Finance), supply chain (Logistics & Finance), and billing & collection (Marketing & Finance). Successful outcomes are achieved through efficient utilization of assets, labor, technology, and capital which, in turn, creates positive RETURNS for a set of stakeholders including business owners, capital providers, customers, employees, societies, and regulators. Thus the "bridge" efficiently manages RISKS and RETURNS while facilitating progress in a global business' relentless quest to achieve success in new ventures and markets. The pandemic, however, has halted this progress. This article aims to explore the potential impact of COVID-19 on business decisions and explores cornerstone or guiding principles that address challenges of navigating business in such extraordinary times.

RISK has different interpretations for a business owner and finance professionals. For the business owner, this

word may imply a hindrance to the success of an idea. For the finance person, this word may imply a potential downside should the idea not succeed. However, both work towards reducing RISK from their vantage points while working towards a common goal.

The current pandemic has now introduced new "downside" scenarios for organizations to consider in their decision making. In our lifetime, we have not seen such levels of coordinated and uncoordinated disruptions across the world, especially since globalization efforts became the normal course of business. Organizations cannot ignore recent global disruptions in business continuity planning which in turn will add new mitigation plans. RISK will continue to have different interpretations; however, the business owner and the finance professionals must find ways to adapt to the new normal even when sighting a flock of black swans.

RETURN, or more precisely expected return, will be harder to estimate, both in the short term and in the long term. Yes of course, there is historical data, but the customary caveat of "historical returns are no guarantee for future performance" will be all the more relevant. Return expectations will need to be adjusted for deeper downside scenarios such as the current pandemic. Unlike insurance company protections under "Act of God" clauses, a business is expected to continue its operations with heightened expectations from customers, employees, and governments – precisely at a time when resources are stretched.

In short, new scenarios emerge with changing expectations from stakeholders, while RISK and RETURN requirements pose continued challenges for business. The cornerstone principles of a business form the basis for addressing these challenges.

Cornerstone principles include **Perseverance**. **Prudence**. **Energy**. In short, PPE.

Firstly, a business with resilient operations serving stakeholders under extreme circumstances demonstrates **Perseverance**. Such operations come from a sound business model, long term planning, and diligent investments. Perseverance in a business, or for that matter in human beings, comes from a disciplined application of guiding principles resulting in RETURNS. The key is changing "expected" returns to "certain" returns through deliberate actions.

Secondly, a business that is judicious with the balance sheet and operating costs acts with **Prudence**. Capital markets, as observed recently, clearly prefer companies with firepower or headroom in their balance sheets and strong competitive advantages. Keeping a balance sheet strong and retaining competitive advantages are not easy decisions for management. This challenge is all the more magnified today where business cycles appear to be shorter and downturns are deeper. Prudence is demonstrated through a careful evaluation of RISK under various scenarios and resulting actions knowing that competitive advantages are still required when business cycles return to a new normal.

Finally, adaptability and flexibility fuel the new **Energy** for a business to get ready for the next morning – with or without a storm. This Energy utilizes all the resources (assets, people, technology, and capital) of a business to remain competitive and relevant. Articulation of a renewed vision to overcome perceived and real challenges become an important task for management.

In summary, business disciplines including Finance collaborate to achieve a business purpose. An idea has inherent RISKS which are managed using guiding principles to deliver RETURNS for all stakeholders.

Business disciplines do not function well in isolation, neither are they designed to do so.

PPE is equally applicable to our personal lives. As a result of the pandemic, many have recently experienced and demonstrated PPE in various ways such as identifying an area or two of improvements. The emerging and constantly changing situations are not easy, with new challenges potentially unfolding in the future. Nevertheless, guiding principles remain consistent while new scenarios are taken into account. Under this new scenario, my young children are now very familiar with the concept of a lockdown. I just hope that their next encounter with "QUARANTINE" will be when they get it as a question in a spelling bee competition. They will nail it.

This article reflects individual views of the author. Siby Abraham, CFA, is a member of Saudi Aramco Controllers (Finance) with responsibilities covering inorganic investments.

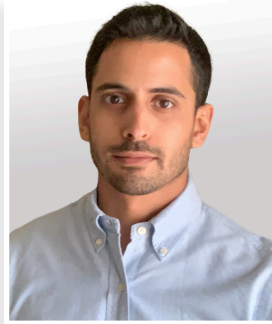
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EMOTIONAL INTELLIGENCE

You're smart... but are you *Emotionally Intelligent?*



Written by: Sultan AlMalki
Petroleum Engineer, Saudi Aramco

People used to think of their emotions and intelligence as two separate things. However, put together, this combination results in a powerful means for success: Emotional Intelligence.

Individuals with a high level of Emotional Intelligence will have the capacity to be aware of their emotions and will have control over those emotions and how to express them. In other words, people with a high level of Emotional Intelligence will handle interpersonal relationships judiciously and empathetically.

So, **what is Emotional Intelligence exactly?** Emotional Intelligence refers to the individual's ability to understand and manage his/her own and others' feelings and know how to react to them.

People with high Emotional Intelligence are more likely to get along with others, and they are more likely to be successful compared to those with a low level of Emotional Intelligence. That is why it is critical to improve your Emotional Intelligence and be able to understand the impact of emotions on thoughts, behaviors and actions.

Some studies show that **Emotional Intelligence is responsible for 58% of your job performance and that 90% of top performers have a high EQ.**

The Elements of Emotional Intelligence

In general, Emotional Intelligence enables individuals to become:

- **Self-aware:** Able to recognize and understand their own emotions
- **Self-regulate:** Able to be in control of their emotions and, eventually, actions
- **Self-motivated:** Able to be motivated to perform and act to reach their goals
- **Empathetic:** Able to understand others' feelings and see things from their point of view. While empathy is an important element of EQ, it cannot be achieved without self-awareness.
- **Relational:** Able to maintain relationships, interact, work, and manage conflicts with others

The Importance of Emotional Intelligence

People always think of EQ as the enemy of IQ, but the reality is that they work well together. Having both is necessary in order to become successful in your career and will lead to happiness and well-being in general. Intelligence alone might not get you to what you want to achieve. You have to have the ability to function well within a relational environment.

IQ + EQ = Success

EQ is, in many ways, the essence of being human. Theodore Roosevelt said: "No one cares how much you know until they know how much you care."

Who wouldn't want to boost their career, success, and health? Who wouldn't want to improve their relationships and become happier? Studies have shown that a high level of Emotional Intelligence will help you achieve that. When it comes to the professional life, people often don't check the role their emotions play when they walk into their offices. However, EQ has a big influence on work. Nowadays especially, modern work environments have changed, and people work mostly in teams rather than in isolation and depend on relational interactions with colleagues.

Higher Emotional Intelligence at work is definitely a remedy to work stress and a required skill to build personal resilience. Companies have started to realize the impact of Emotional Intelligence, its positive effects and how it can lead to a healthier work environment. Employees with high Emotional Intelligence will have better control of their emotions and others' emotions. This will allow them to act accordingly and appropriately and to be more adaptable to changes at work.

The Signs of Emotional Intelligence

Emotional Intelligence isn't quite as quantifiable as its friend, Intelligence Quotient (IQ). However, certain behaviors might give you an idea of your Emotional Intelligence abilities. Some of these signs are listed below:

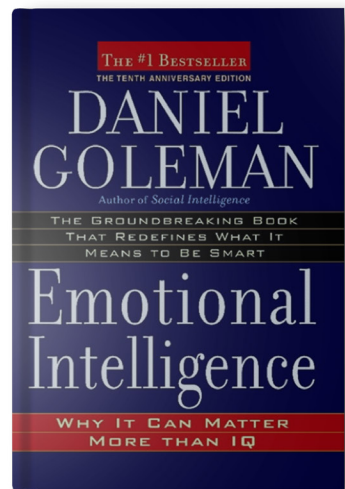
- **You think about feelings:** You have self and social awareness and can recognize emotions and their impact
- **You pause:** You take a moment to think about what you will say to avoid unnecessary talk
- **You control your thoughts:** You always have control over your thoughts, actions, and reactions
- **You benefit from criticism:** You take criticism as constructive feedback to help you grow
- **You show authenticity:** You stick to your values and principles and you speak your mind
- **You demonstrate empathy:** You understand others' thoughts and feelings without judgment
- **You praise others:** You acknowledge people's good work, and you show appreciation
- **You give helpful feedback:** You don't criticize and provide constructive feedback
- **You apologize:** You value the relationship more than your ego
- **You forgive and forget:** You move on and don't allow people to hold your emotions hostage
- **You keep your commitments:** You are reliable and trustworthy
- **You help others:** You work alongside people by building trust and inspiring them

Are you Emotionally Intelligent?

There are many tests available online, which will allow you to determine your level of Emotional Intelligence. These tests will provide you with a score for each element of Emotional Intelligence, where you will be able to identify the aspects of Emotional Intelligence in which you are strong and those in which you are weak.

Remember, Emotional Intelligence plays an integral role to success in the workplace. As such, individuals should work on improving the weak aspects of their Emotional Intelligence.

The term "Emotional Intelligence" was made popular by psychologist Daniel Goleman in his book **"Emotional Intelligence: Why It Can Matter More Than IQ"**, in which he redefines what it means to be smart. The book is an excellent source to improve your Emotional Intelligence skills.



In the first part of the book, Goleman explains the emotional brain and the relationship between our emotions and actions. He also explains the famous term **"Emotional Hijacking"** which relates to certain situations where emotions bypass our normal reasoning process.

One of the exciting parts of the book is **"The Nature of Emotional Intelligence"**, where Goleman compares IQ to EQ and how IQ only contributes 20% to a person's practical success.

Goleman touches briefly on negative emotions and how they feed upon themselves to form a vicious cycle and, most importantly, advises on how people can break those cycles.

If you struggle with stress and worry, you should look at the **"Emotional Intelligence Applied"** section of the book. It gives an insight into how a person's temperament impacts his/her behavior and may lead to toxic feelings, and how Emotional Intelligence may boost your health by enabling you to become calmer, more composed and less temperamental.

In the final part of the book, **"Emotional Literacy"**, Goleman discusses a crucial topic related to the individualistic and societal consequences of lacking Emotional Intelligence. People who lack Emotional Intelligence may suffer from depression and loneliness, which could result to them becoming more violent and prone to medical problems.

Remember, while IQ is relatively fixed over your lifetime, EQ is not. It may take time and effort, but you can improve your EQ and reap its tremendous benefits. It will improve your work life, general happiness, and well-being.



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SPECIAL FOCUS ON DATA QUALITY IN IR 4.0 PROJECTS

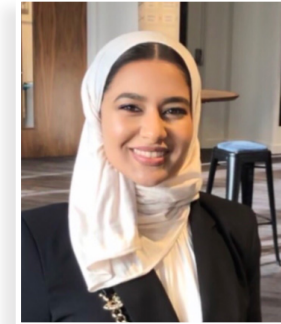
What is IR 4.0?

IR 4.0 refers to the fourth industrial revolution which holds the promise to provide valuable insight into operations, and dramatically improve them. This is true especially for large enterprises. More than ever before, enterprises are relying on data to make informed decisions. This has led them to invest in modernizing their systems to collect data, and deploy technology to gather data automatically.

Machines equipped with sensors gather data, giving rise to the Internet of Things (IoT), placing information at our fingertips, changing the way we work, and improving how we live. Businesses are beginning to explore how they can benefit from adopting IR 4.0 technologies to streamline operations and gain competitive advantages. Every new technology poses challenges. In this article, we will focus on the challenge of data quality for an IR 4.0 project.

Data and its importance in IR 4.0

The Oil & Gas industry today is looking to cut costs and run safe operations while meeting the world's energy needs. IT systems link Upstream business domains including Exploration, Field Development, Drilling & Workover, and Production Engineering. These processes are complex and generate a vast quantity of data. Data analysis plays a central role in optimizing these processes.



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Typically, the data generated is stored in different formats and often in specialized repositories. These include well databases, subsurface studies, real-time data generated by sensors, well logs, geological models, reservoir simulations, seismic models and interpretations, and document management systems.

The aim of IR 4.0 projects is to provide the ability to bring all this information stored in different repositories together for holistic analysis. These projects can process and manage large quantities of data which can provide insightful information that is understandable and actionable by enterprises.





We may think of quality as being similar to excellence. Data quality is identified as information which is useful, good, current, and accurate. According to Jay Cline of Pricewaterhouse Coopers (PwC), while 76% said their firms are aiming to extract value from data they already have, only 15% said they currently have the right kind of data.

Decision makers with access to high quality data in a timely manner are confident of their decisions. The top three challenges faced by leading companies relating to technology include outdated systems, fragmentation of essential data, and data quality.

Problems with data quality in IR 4.0

Data quality plays an important role in Upstream operations. For example, readings are taken by multi-phase flowmeters to measure the flow rate of oil, gas and water. "Multi-phase flow meters are of huge importance to the offshore oil and gas industry. Unreliable measurements can lead to many disadvantages and even wrong decision-making. It is especially important for mature reservoirs as the gas volume fraction and water cut is increasing during the lifetime of a well. Hence, it is essential to accurately monitor the multi-phase flow of oil, water and gas." [1]

Dealing with the time element needs special attention. The first is dealing with time frequency. This occurs when combining data gathered manually versus collected from sensors. Pressure surveys are conducted on wells using calibrated gauges every few months. Intelligent wells equipped with downhole sensors transmit downhole pressure every few seconds. The data quality differs,

as traditional pressure data collection is checked and approved for usage. Pressure data from sensors cannot be validated manually. Therefore, a malfunctioning sensor can affect the results adversely for an IR 4.0 project combining pressure data for analysis.

Studying trends over lengthy periods of time needs attention to data quality. In large enterprises, data is collected by several departments such as onshore, offshore, oil, gas, conventional or unconventional operations. These departments may have different data management and quality control procedures. If the accuracy of data is not consistent, combining data can skew results.

The trust placed by any decision maker on the result of the analysis will depend not only on the analytical techniques, but on the accuracy and the reliability of the data.

Scanning for data quality problems

Having established the importance of data quality, and the consequences of dealing with poor quality data, businesses need to measure and monitor the quality of data.

Most enterprises understand their data and have developed data quality monitoring tools as part of data management practices. Software products which can effectively check Upstream data are still not very advanced. Until now, data quality efforts have been limited to checks within a data repository.

Since IR 4.0 projects integrate data from several different repositories, data quality checks must be performed on data after it is brought together to serve IR 4.0 projects. Take, for example, one dataset that contains borehole trajectory, while another contains readings from well logs. If the depths are not corrected in both datasets, bringing data together for analysis is problematic. Therefore data quality checking for IR 4.0 is more complicated than looking for simple depth range checks, as it involves multiple sources of data.

Addressing data quality problems

Improved data quality not only leads to superior decision making, but results in measurable financial gain. "The executives surveyed by PwC said cleaning up their data will lead to average cost savings of 33%, while boosting revenue by an average of 31%" [5].

Successful enterprises employ best practices which include adopting data management practices aimed at data quality. This includes defining data quality standards and making data quality a vital part of data collection.



Best practices aimed at effective data management treat data as an asset. Upstream enterprises that correlate, correct, and integrate data so that it is easily consumable for IR 4.0 projects are best positioned for gains from IR 4.0.

Rob Consoli generalizes this not just to the energy sector but to manufacturing when he states, "Big Data arrives in a variety of formats from a range of sources. To render it usable, manufacturers need a way to ensure data quality and integrity. They need data cleanup tools that allow them to transform unrefined information into a readable, unified dataset that multiple stakeholders can use." [8]

Conclusion

IR 4.0 is a disruptive technology. When applied correctly, it promises to bring gains to large enterprises. However, it does not come without its challenges. It requires the right data with trusted quality in order to be effective. As we move towards adopting IR 4.0 technologies, we need to realize the importance of data, and implement best practices to ensure its quality. Treating data as a

precious asset will enable superior decision making not just today but for years to come.

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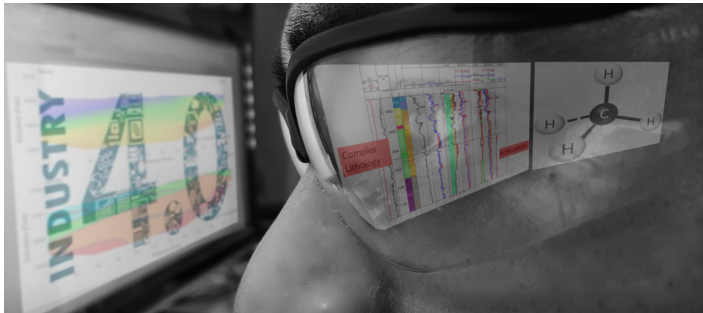
SURFACE LOGGING: THE INVISIBLE TOOL



Khalid Al-Qubaisi,
Subject Matter Expert on
Mud Logging,
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Steve Dsouza,
Formation Gas Analyst,
Excellence Logging



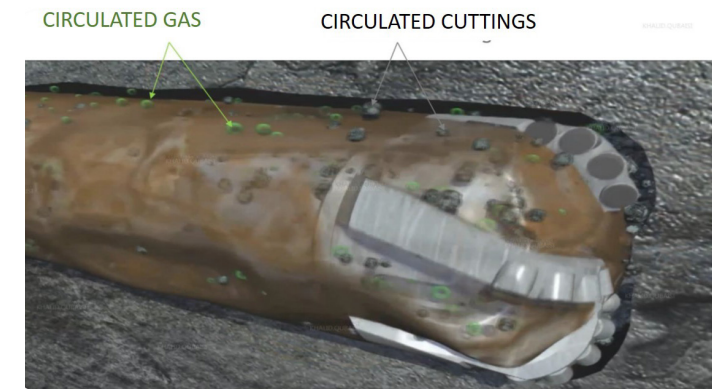
The information obtained gives insights into the geological characteristics and hydrocarbon compositions of the reservoir through the drilling process and, more importantly, plays a part in ensuring safe drilling and mitigating drilling hazards. It is a valuable tool in critical, high-risk or problematic wells, when down-hole tools have pressure or temperature limitations, or when there are multiple drilling challenges.

Where does the information come from?

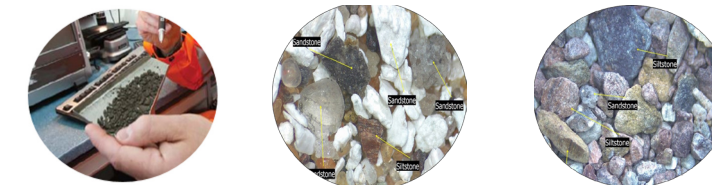
An array of surface sensors captures this continuous stream of real-time information throughout the drilling process. This information is processed through a hub where all data can be monitored through comprehensive displays, which enables taking decisive actions that contribute to the overall safety of operations and formation evaluation. This, however, is only the beginning of the process. Along with the drilled formation and circulated mud, hydrocarbons that are trapped within the formation are brought to the surface and are an early indication of reservoirs and potential discoveries. Using a hydrocarbon extraction and analysis system, hydrocarbons are “pulled” from the drilling fluid and are broken down into individual alkanes, giving the C1 (methane) to C5 (pentane) components.

Using hydrocarbon ratio analysis, hydrocarbon signatures can be identified, which indicates the formation fluid types.

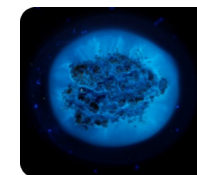
Formation cuttings in the circulated mud are collected from the mud filtration system commonly known as a ‘shale shaker’, where they are washed to remove any contamination from the mud.



Drill bit cutting the rock formation and bringing it up to the surface



Rock cutting visual assessment



Fluorescence of oil shown under a microscope

Utilizing a digital microscope, these samples undergo a physical examination and a visual assessment. These observations are then recorded on a depth-based log.

In this process, understanding the variables involved and the means to eliminate them plays an important role in the data quality and interpretation process. With that in mind, advancements in technology have led to laboratory quality data on the rig site, known as advanced services, which provide key information that guides operational decisions.

Advanced hydrocarbon services detect higher alkane components that assist with the identification of multiple fluid types such as gas, condensate, and oil, along with other non-hydrocarbons that could be associated with formations and reservoirs. An in-depth analysis of these hydrocarbons also aids with identifying zones of false hydrocarbons caused by a process called Drill-Bit Metamorphism (DBM) through analysis and interpretation.

Advanced lithological analysis involves elemental and mineralogical evaluation of formation cuttings. Pyrolytic analysis for Total Organic Carbon (TOC), kerogen typing, and thermal maturity identify pay zones, sweet spots, and reservoir signatures in both conventional and unconventional plays, as well as information such as brittleness index and spectral gamma ray data. This information is comparable with certain downhole tools and can aid in zonation and geo-steering.

What does the future hold?

As the oil industry is booming with technological advancements, surface data logging is leading in taking formation evaluation to new heights. With recent developments, surface logging will contribute in facilitating data analytics by building a digital samples database that would aid in future IR 4.0 projects, enhance workflows by permitting rapid and accurate on-site and remote decisions, and apply automations to reduce human errors. These benefits combined hold significant potential to maximize productivity with tremendous cost-saving benefits.

As the need for answers to support decisive action increases, understanding the bigger picture is more vital than ever. As surface logging technology advances, it is clear that this tool is an integral piece of the puzzle that is formation evaluation.



Surface logging allows us to understand complex rock formations



THE TRUE MARKET VALUE OF A GOOD PETROLEUM ENGINEER

Thinking Like a Petroleum Engineer: An Educational Benefit?

Defined as the application of basic and engineering sciences to the finding, development, and recovery of oil, gas, and other resources from wells, petroleum engineering is often mistaken for a simple amalgamation of other disciplines applied to the exploration and recovery of hydrocarbons. That is not to say that other disciplines have no place in the industry: during the evolution of petroleum engineering and its comprising subdisciplines (Fig. 1), engineers from other disciplines such as chemical, mechanical, civil, and electrical freely entered the profession contributing to its development.

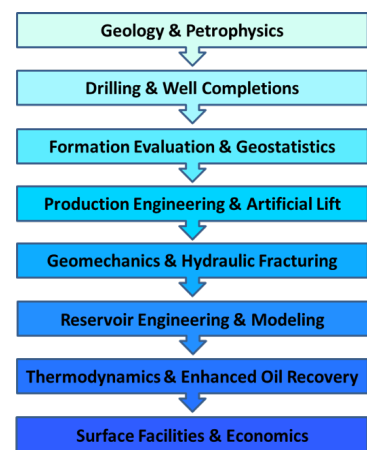


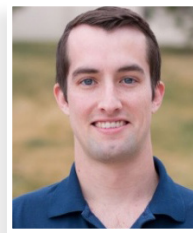
Fig. 1—Major petroleum engineering subdisciplines arranged in the sequence they appear during exploration and production. (Image credit: Andreas Michael. Note: The image is strictly the authors' view of sequence of oil and gas operations. This by no means represents how exploration and production companies operate in the oil and gas value chain.)



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Petroleum engineers should be the natural first choice for petroleum engineering positions: their educational and professional background provides them with an undisputed advantage, giving them a leg over candidates from other disciplines. This article discusses the marketability of petroleum engineering graduates in the workplace in the present, and how this can be improved in the future.

Dedicated to the Petroleum Engineers' Class of 2020, worldwide.

Contributions from across this wide array of engineering disciplines have transformed petroleum engineering into a complex and subtle discipline of its own. An appropriate understanding of the way petroleum engineering subdisciplines are interlinked is necessary for tackling complex, multifaceted petroleum engineering problems. This is where the advantage of a petroleum engineering education lies: intradisciplinarity.

Shrewd petroleum engineering graduates are able to assess oilfield problems efficiently and comfortably through all their facets. When it comes to exploration and production (E&P), well-rounded petroleum engineers are the best candidates for finding out why something is happening, how it is happening, and what you can do to better your wells. Through their intradisciplinary knowledge, they can look outside the box and provide solutions to challenging obstacles, which feature aspects from multiple petroleum engineering subdisciplines.

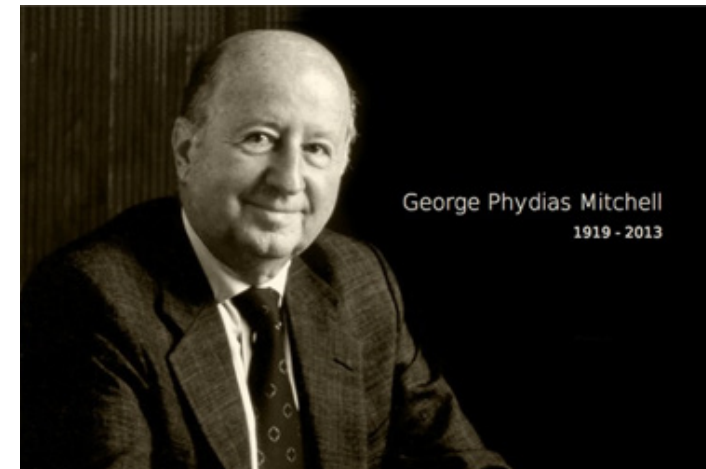


Fig. 2—George P. Mitchell. Source: <http://houston.culturemap.com/news/real-estate/08-08-13-billionaire-businessmans-memory-to-be-honored-by-the-community-he-created/#slide=0>

The quintessential example of this comes from George P. Mitchell. The sharp Greek American combined existing technologies from drilling and reservoir stimulation to answer a question known to virtually everyone in the oil field, "How can we extract petroleum straight from the source rock?" By coupling horizontal drilling with hydraulic fracturing, Mitchell was able to extract hydrocarbons from the nearly impermeable Barnett Shale source rock, making it the target rock itself. This was a golden opportunity lurking where conventional industry did not look. The developments in hydraulic fracturing and horizontal drilling in the 1990s and 2000s, respectively, paired with the rising natural gas prices, caused the number of wells in the Barnett Shale to skyrocket (Fig. 3).

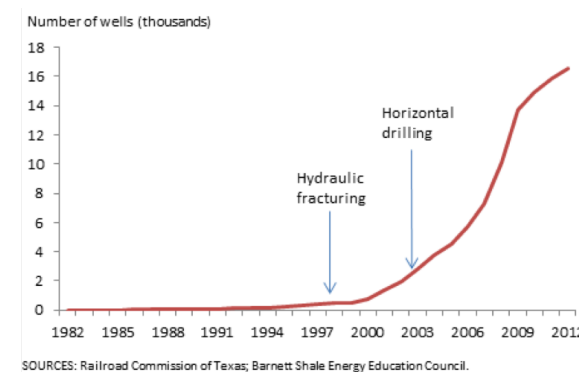


Fig. 3—The technological innovations in hydraulic fracturing and horizontal wells spurred drilling in the Barnett Shale. Source: <https://www.dallasfed.org/research/energy11/barnett#History>

Mitchell was proud to be, first, a petroleum engineer (first in his class at Texas A&M) and, second, a businessman, comprehending the need to understand the oil industry both technically and economically and applying engineering to satisfy his ambition and competitiveness. But how do we get more George Mitchells?

The answer lies in in-depth and high-quality petroleum engineering education. Academia should combine curricula and faculty members capable of teaching students (and future industry professionals) and giving them the skills desired by and necessary for success in the industry (Michael, 2018). Without a good academic foundation, petroleum engineers go into the market lacking that competitive edge.

Academic programs interested in facilitating a smooth transition for their graduates into the industry should work in conjunction with the industry to provide the correct balance between theory and practice in their coursework, ensuring that job vacancies can be immediately filled with candidates of relevant education and training. For instance, a well completions job opening should have no better candidate than a good petroleum engineer specialized in completions. Integrating these petroleum engineering subdisciplines in a manner efficient for teaching and learning is essential for producing market-attractive professionals.

Professional societies such as SPE can act as mediators, bringing people from industry and academia together and putting them in the best position to shape a future narrative where academia prepares good petroleum engineers who are competitive enough to fulfill the oil industry's employment opportunities generated in the next upturn.

Why Would You Hire a Petroleum Engineer Rather Than Anyone Else?

While engineers of all stripes are certainly able to learn about and understand disciplines other than their own, petroleum engineers come readymade. Petroleum engineers are sometimes referred to as jack of all trades (with the unspoken implication: master of none).

Even with education, which directly prepares them for work in the industry, there are some situations in which a different engineering specialty may be better suited for solving the problem at hand. A chemical engineer is better suited for optimizing refining processes just as a mechanical engineer has a better understanding of the torques and forces going into the design of a new engine or drill bit. At the level of supermajors, this can be taken to the extreme: instead of hiring petroleum engineers, companies can hire engineers from other disciplines and train them into petroleum engineers. If the largest of the large thinks it is better to train engineers from other disciplines to be petroleum engineers after they leave school, where is the value in a petroleum engineering degree?

As most oil and gas companies do not have the same training budget or cash reserves available as supermajors, the most obvious answer is the immediacy of their ability to contribute. If an employer needs to get value out of a new hire in weeks or months, a petroleum engineer already possessing a basic understanding of production optimization or reservoir modeling is an ideal option. He or she would only need to learn the finer points as applied to his or her company's specific methods to be "up to speed," faster than any other engineer who would need to learn the basics prior to those finer points.

Perhaps more important than the understanding of any one of the petroleum engineering subdisciplines (Fig. 1), however, is a holistic understanding of the entire petroleum process and the relationship between subdisciplines—from formation to discovery, to spud to production, to stimulation and optimization to sales. For example, it is important for a petroleum engineer to recognize that immediate cost saving measures, such as drilling a fast but crooked well or skimping on formation protecting chemicals during a fracture treatment, will negatively impact the well's recovery and therefore its value. Generally, a good petroleum engineer recognizes that decisions on a well should not be made in a vacuum, as they may have an impact outside their specialty.

Transferrable Skills of a Petroleum Engineer

Just as engineers from other specialties can sometimes find a home in the petroleum industry, petroleum engineers can also find applications for their skills outside of the patch. Petroleum engineers may be better prepared than many realize for just such a move. The transferrable skills developed over the years working in the industry open up many opportunities, enabling exploration of new industries and job titles.

"Transferable skills" are skills developed while performing a job or task, which can be applied to other situations, in a wide range of jobs or industries (Ligman, 2009). These are skills acquired through employment, classes, internships, co-ops, research opportunities, study abroad experiences, campus or community activities, etc., which can be transferred to a new career pursuit.

Transferrable skills span technical, communication, critical thinking, analytical, and leadership areas, just to name a few. Good petroleum engineers already learn many of these skills during the course of their formal education, pick up more on the job, and can always continue their professional education through alternative routes such as online courses, volunteering, mentorship, and involvement in professional societies.

Can a Petroleum Engineer Work in Another High-Tech Field?

Transfer of skills to the oil and gas business from outside has been far more common than the opposite. Most notably in the period from 2009 to 2013, many NASA engineers switched careers to the oil industry (Kaplan, 2016). Some of them ended up working in real-time drilling monitoring centers (or remote operating centers, ROC), due to characteristics they share with space missions.

One of the fundamental skills these engineers brought into the oil business was critical thinking and systems engineering, enabling the building of a state-of-the-art ROCs (Kaplan, 2016).

If the roles are reversed, do petroleum engineers have the transferrable skills needed to move to other highly technical fields? The answer is yes. Beyond the mainstream technical overlap with other engineering disciplines (Fig. 4), "strategic skills" are an example of a transferrable skill that became relevant when a reservoir engineer made that transition from a petroleum engineer to a NASA aerospace engineer (Saiz, 2016). Nevertheless, as with every other engineering profession, there is always a learning curve, which may often require that additional training to be fully competent in that profession.

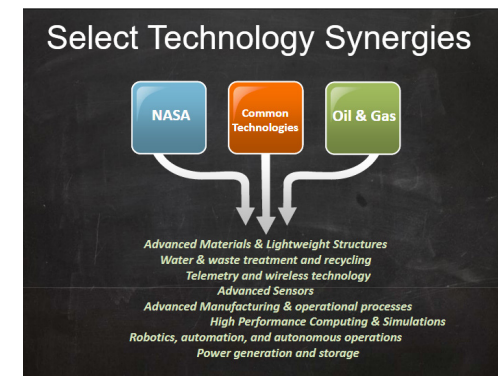


Fig. 4—Common technologies (technology synergies) between NASA and the oil and gas industry, indicating potential areas outside oil and gas where the knowledge and experience of a petroleum engineer can be proven useful. Source: NASA. <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20140004423.pdf>

For instance, a good petroleum engineer specializing in reservoir engineering can easily transition into investment banking. He or she is already used to performing property evaluation and reserve reporting (which includes cash flow modeling), as well as having a solid understanding on mergers and acquisitions and basic financial modeling, all of which are essential skills of an investment banker. Additionally, while it may seem that petroleum engineering and environmental engineering are diametrically opposed due to philosophical differences, they have some common traits such as application of principles of geology, hydraulics, hydrology (such as Darcy's flow), and mathematics for creating solutions to solve environmental challenges of this generation. Petroleum engineers of the future generation should see themselves as environmental

engineers, especially in their approach to unlocking vast hydrocarbon reserves while doing it with lesser carbon footprints and protecting the environment. With the ever-converging philosophies of both professions, petroleum engineers can provide help now as well as in the future in shaping the field of environmental engineering.

Key Takeaways

- Good knowledge of all petroleum engineering sub-disciplines and how these relate to one another gives petroleum engineers an advantage over other engineering majors when it comes to solving complex, multifaceted E&P problems.
- A good educational foundation, which includes direct interaction with the industry, is necessary for petroleum engineering graduates to remain competitive in the job market.
- The transferrable and strategic skills academic institutions and professional training provide enables petroleum engineers to become competitive in other areas outside the oilfield.

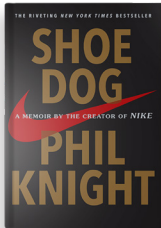
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Insights in Times of Uncertainty

By: Nouf Alotaibi

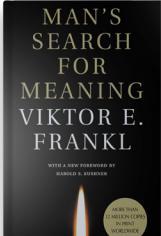


Shoe Dog
by Phil Knight

“When you see only problems, you’re not seeing clearly.”

“Phil Knight’s memoir about creating Nike, is a refreshingly honest reminder of what the path to business success really looks like.”
- Bill Gates

This book is extremely motivating and almost comforting for all business founders. Phil started his business very much as the underdog, and the journey of his personal growth is very relatable. It is a good reminder that, although growing is necessary, it is hard, too.

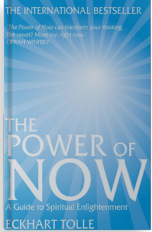


Man's Search for Meaning
by Viktor E. Frankl

“Those who have a ‘why’ to live, can bear with almost any ‘how’.”

“Man’s Search for Meaning” is a 1946 book by Viktor Frankl chronicling his experiences as a prisoner in Nazi concentration camps during World War II and describing his psychotherapeutic method, which involved identifying a purpose in life to feel positive about, and then immersively imagining that outcome.

An inspiring, raw, and touching memoir of a man who realized that you cannot avoid suffering, but can choose how to cope and find meaning by moving forward with a renewed purpose.



The Power of Now
by Eckhart Tolle

“It is not uncommon for people to spend their whole life waiting to start living.”

“The Power of Now: A Guide to Spiritual Enlightenment” is a book by Eckhart Tolle. The book is intended to be a guide for day-to-day living and stresses the importance of living in the present moment and transcending thoughts of the past or future.

This book teaches you to indulge in the present, forget the past and the future, listen to how your mind speaks, and realize that the present moment is all you have.

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If you are wearing a disposable mask, make sure to wear the colored surface facing outwards, with the white surface of the mask facing inwards.

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Don't store hand sanitizer in the car. High temperatures can reduce its germ-killing ability.

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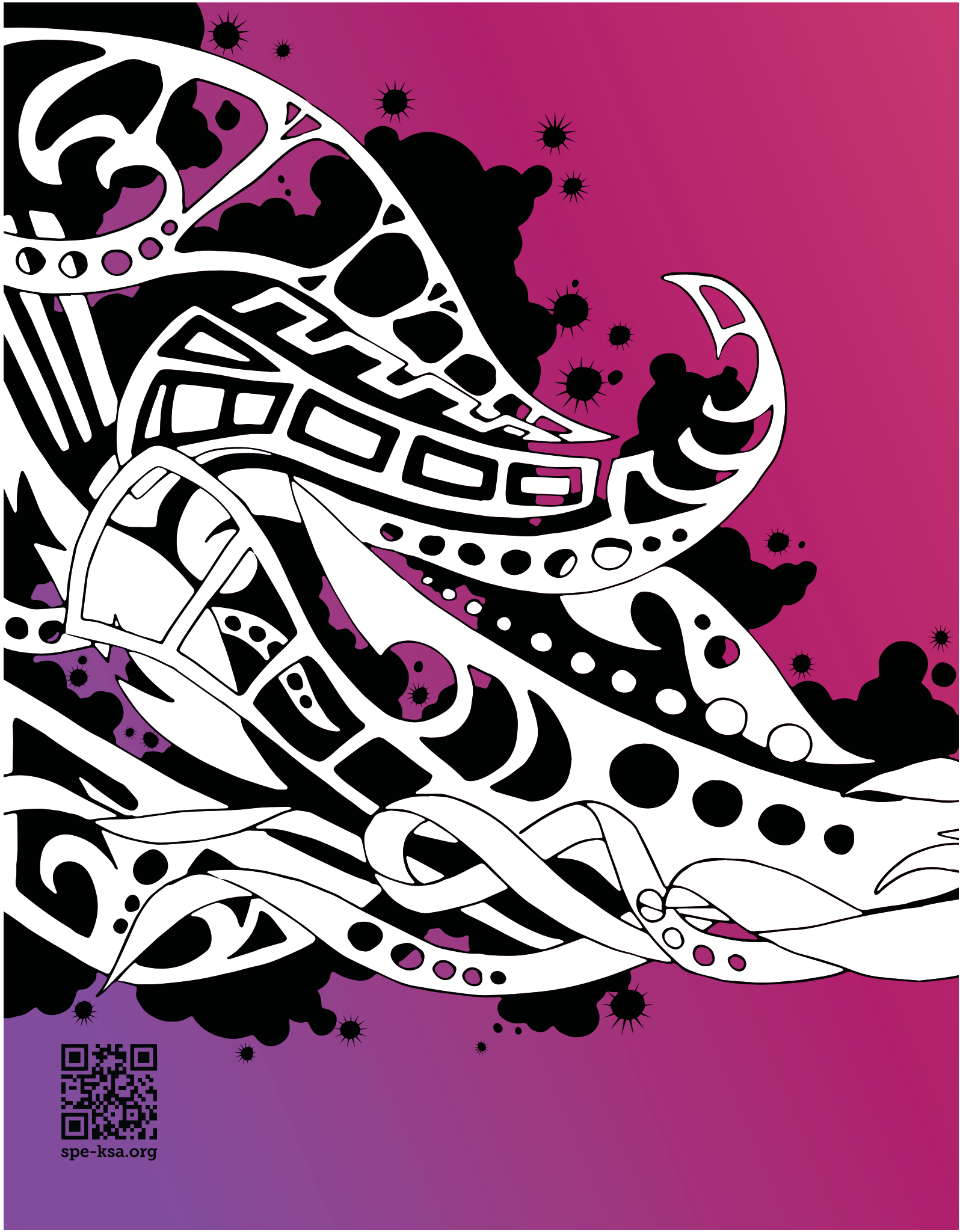


Use your elbow to open doors, and reduce your risk of infection.

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