



August 2021

# SandRose

Magazine



Kingdom of Saudi Arabia Section

epicenter of  
**ENERGY**

# CONTRIBUTORS

## AUGUST 2021 EDITION

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### We want to hear from you.

To contribute in future editions, or share with us your feedback, please reach us on:

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FEATURE!**

**SHARE YOUR FAVORITE PIECES  
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AND FEATURE!**

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# MESSAGE FROM THE EDITOR-IN-CHIEF

This edition marks the 8th and last edition for the term 2019-21, and it is, to say the least, bitter sweet to write this message. I have utmost confidence that the SandRose team for the upcoming term, 2021-23, led by Reem Alsadoun, will continue to uphold the standards of this publication and will take it to the next level. As I bid farewell to my role as Editor-in-Chief, it is crucial that I acknowledge each and every person who has had a hand in the success of SandRose. The dedication of our editors, artists and contributors is absolutely inspiring, and while I personally thoroughly enjoyed editing, writing, reviewing and exploring new talents, I can candidly say that I attribute the success of SandRose from 2019-21 to the talented SandRose team and all contributors. Some were there from day one, others have come and gone and many were one-time contributors. All, however, were superstars.

SandRose has shown me that our people are willing to give from their own time and go above and beyond the call of duty when they believe in your vision and your direction. As a matter of fact, this does not apply to SandRose alone. SPE-KSA is a platform designed for precisely those aforementioned, special individuals, who will give a 110% simply to support in serving a bigger purpose. That purpose includes disseminating knowledge, developing young professionals and supporting our local communities.

If you revert back to any of the previous SandRose editions, or browse the SPE-KSA website, you will see those efforts in action, and that is only a fraction of the story. The section's teams and volunteers have continued to, against all odds, carry out their activities in an exceptional fashion. Throughout the term, SPE-KSA has supported the industry through disseminating knowledge and developing both the technical and non-technical skills of its members. Moreover, it has supported its local and global communities by contributing in critical causes and both leading and participating in large-impact initiatives.

In this edition, you will read about the section's most recent activities, including Endogenous, SPE-KSA's flagship program. You will also read about what other sections are doing, along with both technical and non-technical articles written by our contributors. Additionally, the edition highlights our Volunteers of the Year, and features an article on the Society of Women Engineers. Last but not least, the edition features an interesting piece by our sponsor for the edition, Baker Hughes.

As we conclude our term, I would like to reiterate my gratitude to all of SandRose's contributors, and give a special round of applause to the members of the SandRose team. I also thank all of our sponsors for believing in us. Last but not least, I thank you, our readers, for supporting us and motivating us to always push above and beyond in presenting you with exceptional products.

**HALA A. ALHASHMI**  
Editor-in-Chief



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# MEET THE SANDROSE TEAM



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Contributor

# MESSAGE FROM THE CHAIRMAN

A two-year term has come to an end. Earlier in our term and as we were taking-off with our ambitious plans, we were hit with a global challenge, a pandemic that halted all in-person activities, if not most of the activities world-wide. But that did not stop a resilient team like the one SPE-KSA has. We have successfully steered our way across all storms overcoming all challenges. Our prompt adaptation and timely transformation of our activities were valuable and have paid off, yielding to results beyond expectations.

SPE-KSA has been blessed for many years with teams who are committed and dedicated to maintaining its leading position as a recognized technical and professional platform in the Energy Industry. Thus, regardless of all hindrances, SPE-KSA has always been able to thrive through groundbreaking initiatives and activities that are in the interest and benefit of its members and volunteers. This is mainly because SPE-KSA nurtures an environment that draws in many brilliant, dedicated, and innovative volunteers.

At this phase and as we are concluding our term, I would like to extend my sincere gratitude to our valuable volunteers and members who were instrumental in the growth that we have achieved during the past term. I would also like to sincerely thank the SPE-KSA Executive Board members who augmented a wide range of skills and amplified cultural insights towards the success of this term. My final appreciation words go to our inspiration and support, the SPE-KSA Board of Directors.

I conclude by congratulating the new Executive Board and wishing them all the best in their upcoming term. I am confident that they will add tremendously to SPE-KSA and will continue to uphold the society's high standards and the upward trend of our activities and development.

**ABDULAZIZ K. AL SUFAYAN**  
Chairman, SPE-KSA



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# SPE-KSA 2020-2021 EXECUTIVE BOARD



**Nassir Abalkhail**  
Technical Programs  
Chairperson



**Mohammed Al-Nahas**  
Young Professionals  
Chairperson



**Saad Al-Mudara**  
Treasurer



**Mohammed Al-Mishkhas**  
Trips & Social Activities  
Chairperson



**Othman Al-Qasim**  
Membership Chairperson



**Abdulrahman Al-Naim**  
Information Technology  
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**Hala Al-Hashmi**  
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**Abdulrahman Al-Musare**  
Planning & Coordination  
Chairperson



**Abdullah Al-Mulhim**  
Event Management  
Chairperson



**Seba Al-Maghlouth**  
Student Outreach  
Chairperson



**Abdulaziz Al-Suwailem**  
Public Relations  
Chairperson

## JOIN SPE-KSA FAMILY NOW!

SPE-KSA section is considered one of the largest and most decorated SPE sections in the world with more than 10,500 members.

For more information about how to join SPE-KSA family, visit [spe-ksa.org/membership/](https://spe-ksa.org/membership/)





## SAUDI ARAMCO EXECUTIVE MANAGEMENT MEMBERS WIN MAJOR SPE AWARDS



CONGRATULATIONS TO

**DR. MOHAMMED Y. AL QAHTANI**  
**Senior Vice President of Downstream, Saudi Aramco**  
SPE/AIME HONORARY MEMBERSHIP AWARD

In 1941, the Society of Petroleum Engineers (SPE) and American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME) Board of Directors established the Honorary Membership award to be presented to outstanding individuals to recognize their technical achievements and appreciate their substantial service to the institute and the society. The Honorary Membership is the highest honor presented by SPE to long-standing members and is limited to only 0.1% of total SPE memberships. Dr. Al Qahtani, has been bestowed with the Honorary Membership joining a list of a few who share this prestigious honor.



CONGRATULATIONS TO

**MR. KHALED AL-BURAIK**  
**Vice President of Saudi Aramco Southern Area Oil Operations**  
SPE/AIME CHARLES F. RAND MEMORIAL GOLD MEDAL

The Charles F. Rand Memorial Gold Medal is awarded to leaders for their distinguished achievements in mining administration, including metallurgy and petroleum. First established in 1932, this award is presented to corporate and executive management members who demonstrate leadership qualities, support innovations in administration and technology, positively impact the company and industry during their professional and management career. Vice President of Saudi Aramco Southern Area Oil Operations, Mr. Al-Buraik, has been awarded this honor recognizing his commitment and dedication to the oil and gas industry.



CONGRATULATIONS TO

**MR. ABDUL HAMEED A. AL-RUSHAID**  
**Vice President of Drilling and Workover, Saudi Aramco**  
SPE STEPHEN A. HOLDITCH VISIONARY LEADERSHIP AWARD

The Society of Petroleum Engineers has awarded Vice President of D&WO, Mr. Abdul Hameed Al-Rushaid, with the Stephen A. Holditch Visionary Leadership Award. The award was introduced in 2020 and is presented to leaders who have devoted significant time and effort and demonstrated exceptional visionary leadership that has been influential to the society and to the oil and gas industry. Mr. Al-Rushaid is among the first individuals to be awarded with this unique honor.



SPE-KSA section has been awarded the **SPE 2021 Section Excellence Award**



Saudi Aramco has won the **2021 Regional Distinguished Corporate Support Award**

## 2021 INTERNATIONAL AWARD RECIPIENTS



**Dr. Ashraf Al Tahini**  
SPE Distinguished Service Award



**Dr. Ali Yousef**  
SPE Distinguished Membership



**Dr. Abdullah Sultan**  
SPE Distinguished Membership



**Mr. Mohammad Mian**  
SPE Management Award



**Ms. Fatemah Abudeeb**  
SPE 2021 Giovanni Paccaloni Young Professional Service Award



**Ms. Suha Kayum**  
SPE 2021 Giovanni Paccaloni Young Professional Service Award

## 2021 REGIONAL AWARD RECIPIENTS



**Mr. Abdulrahman Al-Ahmari**  
Regional Management Award



**Mr. Ali Saleh Ajmi**  
Regional Projects, Facilities and Construction Award



**Dr. Bander N Ghamdi**  
Regional Service Award



**Mr. Abdullah Ghamdi**  
Regional Service Award



**Mr. Fatai Anifowose**  
Regional Service Award & Regional Data Science and Engineering Analytics Award



**Mr. Laurie Duthie**  
Regional Completions Optimization and Technology Award



**Dr. Tareq Ghamdi**  
Regional Formation Evaluation Award



**Dr. Abdulaziz Qasim**  
Regional Sustainability and Stewardship in the Oil and Gas Industry Award



**Mr. Rakan Alotaibi**  
Regional Drilling Engineering Award



**Mr. Abdullah Salam**  
Regional Health, Safety, and Environment Award



**Ms. Zainab Alsaihati**  
Regional Public Service Award



**Mr. Mohamed Mahmoud**  
Regional Production and Operations Award



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## CONGRATULATIONS TO OUR VOLUNTEERS OF THE YEAR!

Every year, SPE-KSA celebrates the tremendous efforts exerted by the volunteers who work tirelessly to serve the section and support it in meeting and surpassing the society's standards of excellence. Moreover, there are members who go above and beyond the call of duty to achieve this mission, and those members are our "Volunteers of the Year". To all of our "Volunteers of the Year", we say: Thank you! The section's success is your success, and your efforts and contributions have not gone unnoticed.

Here is what our "Volunteers of the Year" have to say about their experience with SPE-KSA.

### VOLUNTEERS OF THE YEAR, 2019-2020



**SARA  
AL-MAHROOS**

Petroleum Technician  
Saudi Aramco

*My volunteering journey with SPE-KSA has been a highly rewarding and enriching experience. It was truly an honor to be chosen for the SPE-KSA Volunteer of the Year award. This could not have been possible without the immense support and dedication from my fellow volunteers. The most rewarding part of my experience was to continuously meet new people and work on exciting new projects. The COVID-19 outbreak presented unique challenges during our term but also revealed special opportunities. Being a member of SPE-KSA (Public Relations Team) made it easier for me to realize what my passion is. Discovering who you are and where your interests lie will steer you onto the right path in your career and life. I encourage all new employees in the O&G sector to take advantage of SPE's volunteering opportunities and share their time, knowledge, and experiences with others and I hope that they find it as rewarding as I did.*



**SARAH  
ALAMER**

Reservoir Engineer  
Saudi Aramco

*SPE-KSA connects you with an amazing network, exposes you to great volunteering opportunities, and provides you with the space to grow personally and professionally. Working with the Student Outreach team allowed me to share my passion for Energy and Engineering with the youth in an attempt to inspire them to follow their own. It has been a rewarding experience with a truly a great society!*



**SARAH  
AL RUWAILY**

Petroleum Engineer  
Saudi Aramco

*Joining SPE-KSA as a new hire has been one of the most rewarding and diverse experiences in my career. Over the past four years, I had the privilege of working with multiple teams including Technical Programs, ATS&E, Young Professionals, and SandRose Magazine.*

*Working in varied roles across multiple teams allowed me to advance my technical skills and develop my soft skills. In addition, my time at SPE-KSA has provided me with the platform to connect with SPE members from all over the world to exchange technical and professional expertise to ultimately advance the oil and gas industry. Overall, my experience with SPE-KSA has significantly contributed to my growth both personally and professionally.*

*My time with event management, for instance, has taught me a great deal about the intricacies and the high level of coordination required to host a successful conference or seminar both physically and virtually. I cannot stress enough the value to be gained from working on organizing such events. The experiences offered by SPE-KSA will allow you to acquire new skills, and learn about emerging topics firsthand from industry leaders and experts. The opportunities provided by SPE-KSA will lead to continuous growth and promote knowledge dissemination. I feel that I have gained more than I have given to SPE-KSA through the various roles that I have played as a volunteer, as a team member, and as a team lead. I genuinely believe that new members will immediately recognize and appreciate the tremendous value that SPE-KSA has to offer.*



## VOLUNTEERS OF THE YEAR, 2020-2021



**RAWAN  
ASIRI**

Petroleum Engineer  
Saudi Aramco

*My experience with SPE-KSA since graduating in 2018 has been nothing short of amazing. In the last three years, I was fortunate enough to work with several teams and gain invaluable lessons from the SPE-KSA community. I had the opportunity to expand my professional and technical networks by working with aspiring volunteers, industry leaders, and technical experts from within and beyond our industry.*

*My most recent role as a team leader of Endogenous – the SPE-KSA flagship program – was especially memorable. We succeeded in delivering the first hybrid event since February 2020 with the great team of Young Professionals and Student Outreach committees. Not only that, we capitalized on recent technologies to expand Endogenous and work with students and professionals from different parts of the world in India, Pakistan, Uganda and the United States.*

*If there's one thing I would recommend for any young professional in our industry, it is definitely to join SPE-KSA. You will develop a network and gain skills in such an accelerated pace that it will boost your career immensely!*



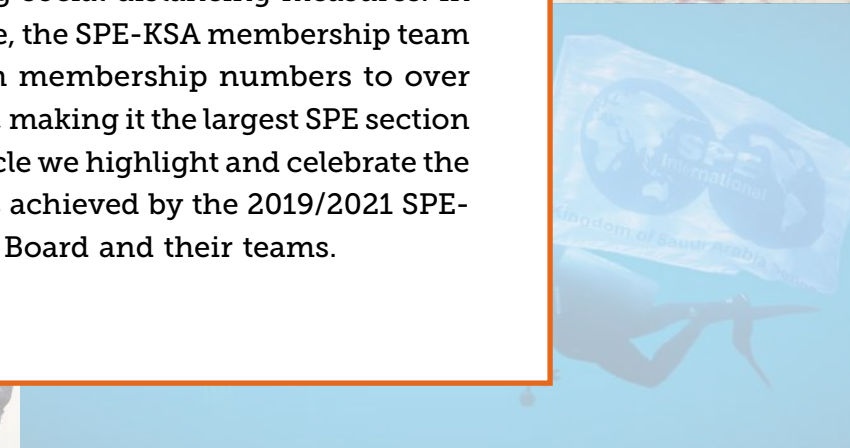
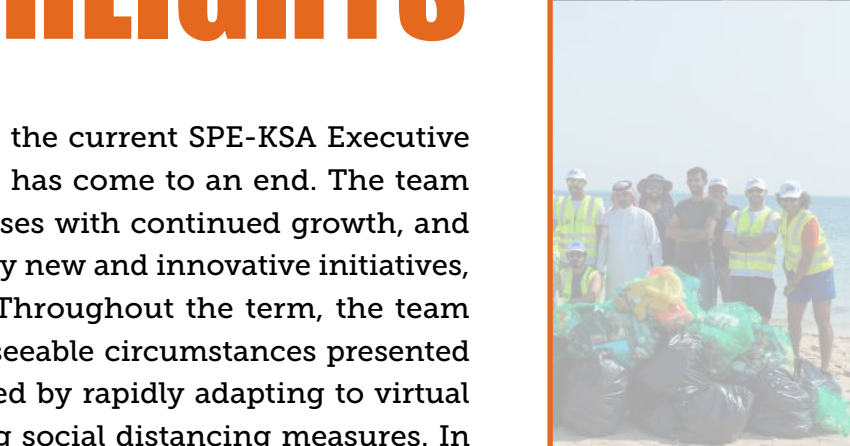
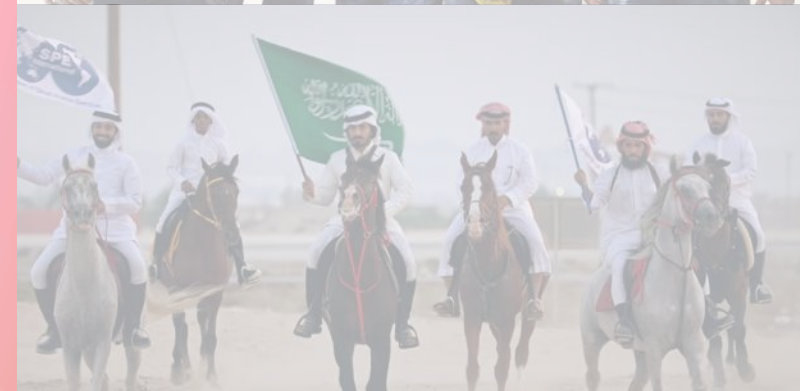
**YAZEED  
ALDUGHAITER**

Drilling Engineer  
Saudi Aramco

*In the relatively brief time I've spent with SPE-KSA, I've been fortunate enough to work on a variety of different projects and initiatives alongside several diverse and talented teams. Primarily, this was through my role as an editor with SandRose magazine, SPE-KSA's official bi-monthly publication. Not only did this offer me a chance to practice more of my hobby of writing, but it also exposed me to a host of stimulating topics and professionals in both Saudi Aramco and our industry at large. In this time, I've also seen how this community can be leveraged to challenge, support, and develop professionals of varied backgrounds and across all levels of experience. I know that I am not alone in recognizing this, since I've seen this community of driven, intelligent, and curious minds grow to become the largest such chapter in the world. Being an active member of SPE-KSA offers professionals a platform to develop themselves and an avenue to communicate, collaborate, and learn from others. The teams at work are dedicated and dynamic, and I hope that newcomers will find as much benefit and fun as I have in being a member of SPE-KSA.*

# TERM SPE-KSA 2019/2021 HIGHLIGHTS

After two fruitful years, the current SPE-KSA Executive Board (2019/2021) term has come to an end. The team celebrates many successes with continued growth, and the introduction of many new and innovative initiatives, events and programs. Throughout the term, the team had to navigate unforeseeable circumstances presented by COVID-19 and thrived by rapidly adapting to virtual mediums and observing social distancing measures. In the face of this challenge, the SPE-KSA membership team reported an increase in membership numbers to over 11,000 - an all-time high, making it the largest SPE section in the world. In this article we highlight and celebrate the many accomplishments achieved by the 2019/2021 SPE-KSA Executive Board and their teams.







## MEMBERSHIP

The SPE-KSA Membership team's mission is to retain & attract new members to become part of the SPE-KSA section. This was done by conducting various marketing initiatives, introducing **loyalty programs** and **membership awareness campaigns** across the oil & gas industry and other industries as well as through the utilization of SPE-KSA section's activities. During the 2019/2021 term, SPE-KSA did not only manage to achieve the team's mission, it also became the **largest section in the world** for the first time since its establishment in 1959. As of June 2021, SPE-KSA is the leading section with the highest renewals, retention and registration with over 11,000 professional members in the Kingdom of Saudi Arabia. During the term, SPE-KSA managed to be the only growing section despite all the unprecedented events across the world. This represents a growth rate of 2%, exceeding the retention goal and surpassing the 2nd largest section, Gulf Coast, by 36%.



## YOUNG PROFESSIONALS

During 2019/2021 term, the Young Professionals team (YP) developed multiple programs focusing on developing YPs **soft skills, professional competencies, and critical thinking skills** by creating curated programs dedicated to fostering discussion and addressing challenges facing the energy industry.

The YP team launched the **Endogenous** challenge in 2020 and 2021, a thought accelerator program that provided YPs with the opportunity to showcase their solutions to technological and strategic challenges by working alongside SMEs and presenting to a panel of expert judges.

Moreover, in partnership with the world-renowned education technology company, Fullbridge, the YP team also introduced two self-driven virtual courses **YOU 2.0** and **ELEV8**. The programs focused on developing YP's soft skills and professional skills. In addition, the team also collaborated with the Young Professionals Energy Club (YPEC) to host a virtual roundtable discussion on current issues and trends facing the global energy market. Continuing with the theme of addressing challenges facing the industry, YP also developed the **"Week of Action"** program focusing on the theme of sustainable development. The program introduced an online and interactive challenge targeting young people from across the Kingdom.

Throughout the two-year term, over **1,600** participants from over **20** different countries participated in YP-developed programs and more than **10,000** development hours were put into these programs.



## TRIPS AND SOCIAL ACTIVITIES

The Trips and Social Activities team (T&SA) introduced a wide array of events and programs, from arranging in-Kingdom trips and organizing activities to promoting environmental conservation, health wellness and safety, and social and community outreach activities and events. Overall, the T&SA team organized over 52 volunteering events, recruited more than 100 volunteers who put in up to 3000 hours of volunteer work. All events were successfully coordinated while observing social distancing measures.



### Trips

*Number of trips organized: (4)*

### Health and Wellness

- *Held (8) different sporting events*
- *(320) donors donated*
- *(160) liters of blood*

### Environmental Conservation

- *(6) companies participated in afforestation and planting campaigns, planting more than (2000) trees*
- *(55) Divers and snorkelers collected more than (500 kg) of waste from halfmoon bay*

### Community Outreach

- *Number of donated computers: (23)*
- *Renovation of (2) underprivileged homes and (1) rehabilitation center, honored by Ministry of Housing*
- *Supported (500) working members of MOH in quarantine by donating meals and pins*
- *Distribution campaigns of (300) winterization packages*







## TECHNICAL & PROFESSIONAL PROGRAMS

During the 2019/2021, the Technical & Professional Programs team (T&PP) organized multiple programs with the mission to exchange professional and technical knowledge relating to the O&G industry, and to provide professionals with opportunities to enhance their technical and professional competencies. The team organized the dinner meeting series, Distinguished Lecturer Program (SPE-DLP), and the SPE-KSA Webinar Series. This term's dinner program featured Edward Aboo, president and CTO of C3.AI and Olivier Le Peuch, CEO of Schlumberger. The team also organized DLP sessions featuring many distinguished SMEs from the O&G industry and established the SPE-KSA webinar series, a new initiative that hosts local and regional SMEs and talents to bring attention to their achievements and to share their experiences with attendees.

The team successfully organized and delivered events in the face of the unique challenges presented by the pandemic by adopting to a virtual medium, a feat that is unique to this term.

**17 T&PP events delivered with 22 hours of technical and professional content provided:**

- 2 Dinner Meetings
- 4 Distinguished Lecturer Program (DLP) Sessions
- 11 SPE-KSA Virtual Webinars



## INFORMATION TECHNOLOGY

SPE-KSA Information Technology (IT) transformed the SPE-KSA website from being a static website to one that utilizes the latest technologies, including but not limited to: Augmented Reality, Twitter Integration, Application Programming Interface and allows other applications and systems to communicate with the SPE-KSA. These features helped in achieving the following:

- Build a PR portal that enables the SPE-KSA Public Relations team to communicate with members without IT interference and has the capability to manage members and lists
- Redesign and enhance SandRose's page to allow searching, sharing and commenting on articles rather than having only a link to the PDF
- Redesign the SPE-KSA Application to include Augmented Reality capabilities along with all the new SandRose publications and the digital membership portal that has members' benefits and a digital Membership card
- Create several applications requested by other teams for events such as Endogenous, TEDX, SESE and SDG initiative.
- Create a portal for teams to submit volunteer times in order to log volunteering hours

All achievements mentioned thus far would not have been possible without the support of the Event Management, Planning & Coordination, Public Relations, Treasury and Information Technology teams.





# A CELEBRATION OF ART & CREATIVITY BY OUR LOCAL TALENT!

## EDUCATION 2019-2020

### TEAM:

ABDULAZIZ AL SUFAYAN, SPE-KSA CHAIRMAN  
HALA ALHASHMI, SANDROSE EDITOR-IN-CHIEF  
RABAB MESHIKHES, INITIATIVE CHAMPION  
YAZEED ALDUGHATHIR, EDITOR  
ROWA TAWFIQ, EDITOR



## SEPTEMBER 2019

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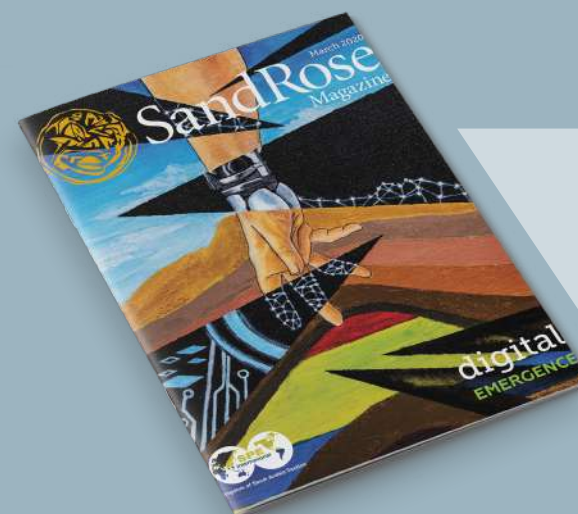
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# SPE-KSA: ALL YOU NEED TO KNOW BOOKLET

**TEAM:**

**ABDULAZIZ AL SUFAYAN, SPE-KSA CHAIRMAN**  
**HALA ALHASHMI, SANDROSE EDITOR-IN-CHIEF**  
**REEM ALSADOUN, INITIATIVE CHAMPION**



# APRIL 2021

**COVER ART BY:**

**BAYAN ZOMARAH**  
**@BAYANZARTIST**

*A special thank you to the **SandRose team** for their revisions, edits and contributions, and to **Anas Ruhman**, the Creative Director of SandRose Magazine, for his efforts on the design and artistic components of all publications.*

*Graphic design for all publications throughout 2019-2021 was by Sara Sami.*



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# Endogenous 2021

A triumphal ending to the most challenging year in SPE-KSA history

The Young Professionals and Student Outreach teams celebrated the final ceremony of Endogenous 2021 on June 7th in their first joint physical event since the start of the pandemic. The glorious ceremony celebrated the aspiring young professionals and university students who have completed the challenging Endogenous thought acceleration program, which extended for four months. The final ceremony included keynote speeches from Dr. Ali Al-Meshari, Chief Petroleum Engineer at Saudi Aramco & Vice Chairman of the Board of Directors at SPE-KSA, and H.E. Ms. Nathalie Fustier, United Nations Resident Coordinator, in addition to presentations from 50 finalists from 4 different countries.

Endogenous 2021 is the flagship program of SPE-KSA. The 4-month thought acceleration program aims to develop the technical, leadership, and communication skills of young professionals and students in the energy industry. Throughout Endogenous, finalists are divided into teams of 3-6 members to develop innovative solutions and solve strategic challenges facing the energy sector in the Kingdom and globally. Endogenous 2021 focused on ESG themes in our industry which were highlighted in the following 3 challenges:

1

## The Circular Carbon Economy

Energy companies globally are working to reduce their carbon footprint through the 4 R's (Reduce, Reuse, Recycle, and Remove). How can we achieve a circular carbon economy with zero net carbon emissions while meeting short- and long-term commitments in supply in addition to maintaining a healthy fiscal regime?

2

## A Resilient Built Environment for a Prospering Ecosystem

To become resilient, we must embrace change and learn to adapt. The world's ecosystem is threatened due to the impact of climate change. How can we plan for a resilient infrastructure that can accommodate disruptions in the ecosystem by capitalizing on the Sustainable Development Goals in power distribution and water treatment?

3

## Data Governance in the Digital Age

With the emergence of the 4th Industrial Revolution and the continuous global efforts for a massive digital transformation, Data has been perceived as the "New Oil". Due to powerful applications in AI, Machine Learning and Advanced Data Analytics, data has been increasingly shared and used in an unprecedented scale. While the value is clear in transforming how the current and future generations live and work, the question of "How can we govern and fully secure the data while increasing its use?" is yet to be fully addressed.

The final ceremony commenced with a Keynote Speech by Dr. Ali Al-Meshari, who congratulated the finalists for completing such a challenging program in unprecedented circumstances. Dr. Al-Meshari also encouraged the participants to continue their path of innovation and striving for a better future, he said, "I cannot wait to see all that you will accomplish".

Dr. Al-Meshari also highlighted the importance of finding solutions to the Endogenous 2021 challenges.

## On the Circular Carbon Economy:

"As the world strives to become more sustainable, we are investing our best minds and precious resources to minimize our carbon footprint and change our view of carbon from a 'waste product' to a potentially valuable resource."

## On A Resilient Built Environment:

"As we focus on developing and investing in the hydrocarbon value chain, the logistics and infrastructure of how energy reaches people around the world becomes more important than ever. So, it's crucial for us to enable and support a Resilient Built Environment."

## On Data Governance:

"One thing is certain. In both of these areas – the Circular Carbon Economy and the Resilient Built Environment – to be successful, we have to capitalize on the vast amount of data that makes a true technological revolution possible. So, Data Governance becomes an essential competency and just as important as engineering, mathematics, or any of the languages we speak as professionals."





H.E. Nathalie Fustier also gave her Keynote Speech to the attendees from her office in Riyadh. Ms. Fustier commended the great work done by SPE-KSA and the Endogenous 2021 finalists to work for a better future for the planet, in addition to supporting the achievement of the UN Sustainable Development Goals and the UN Decade of Ecosystem Restoration.

*"My generation is concerned about the state of our world today and tomorrow, but you are concerned about the world you will inherit. As you know, the United Nations has placed the concept of Circular Economy at the very top of its environmental and climate agendas."*

*"The Kingdom has diligently steered the G20 to further dispose developing and nurturing the idea of Circular Carbon Economy."*

*"SPE has a crucial role to play in shaping the unique contribution that the Oil & Gas sector can make towards a Circular Economy."*

*"Saudi Arabia is not just advocating for carbon removal, it is leading by example."*

The Endogenous 2021 finalists then presented their solutions to the judges and a hybrid crowd. Some finalists presented from the stage while others presented from their homes in different parts of the world such as India, Pakistan, and Uganda. The presentations were a great opportunity for both presenters and attendees to experience a unique global experience of knowledge dissemination.

# Winning Teams:

## Circular Carbon Economy Challenge

Project: Promoting Saudi Arabia's Circular Carbon Economy

### Team members:

**Reem A. Alsadoun**

Saudi Aramco

**Sarah S. Alruwaily**

Saudi Aramco

**Hala A. Al-Sadeg**

Saudi Aramco

**Dana B. Dabbousi**

Saudi Aramco

**Hashim Al-Awwami**

Saudi Aramco

### Subject Matter Expert:

**Ahmed Z. Attar**

Saudi Aramco



## A Resilient Built Environment Challenge

Project: Integrating V2G/H to Grid-tied Solar System for P2P Micro-grid Improvement

### Team members:

**Musab M. Talal**

Saudi Aramco

**Ibrahim A. Albrahim**

Saudi Aramco

**Dakhel A. Aldakhil**

Saudi Aramco

**Ahmed F. Al Habib**

Saudi Aramco

**Fawaz M. Al-Boghail**

Saudi Aramco

**Mohamed Alherz**

National Energy Services Reunited Corporation (NESR)

### Subject Matter Expert:

**Jean-Michel Mufuta Mukena**

Saudi Aramco



## Data Governance Challenge

Project: A Smart Contracts Carbon Emissions Trading System for Saudi Arabia

### Team members:

**Ali H. Alshuwaikhat**

Saudi Aramco

**Klemens Katterbauer**

Saudi Aramco

**Abdullah A. Al Shehri**

Saudi Aramco

**Abdulaziz S. Al Qasim**

Saudi Aramco

**Khalid A. Al-Yahya**

Saudi Aramco

**Zainab A. Homoud**

King Abdulaziz University of Science and Technology (KAUST)

### Subject Matter Expert:

**Robert Borne**

Weatherford

To learn more about the solutions presented at Endogenous 2021, feel free to scan the QR code and view the full Endogenous 2021 Report.





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# GRACIOUS RAMADAN

April 22<sup>nd</sup>, April 25<sup>th</sup> - 26<sup>th</sup>

The SPE-KSA Trips & Social Activities (T&SA) team celebrated Ramadan differently and creatively this year, in alignment with the COVID-19 precautionary measures. The team arranged individual packages containing gifts, candy and snacks that were gifted to the children of underprivileged families. A team of 19 volunteers gathered on April 22<sup>nd</sup> and April 25<sup>th</sup> to assemble the packages. The distribution of the packages started right away on the 25<sup>th</sup> and continued until the next day. The team truly enjoyed holding this activity under the theme "Apart Yet Close at Heart" and the kids genuinely appreciated this kind gesture.

**Event Lead:** Nahid Aldossary  
**Written By:** Arwa AlHilal



# EKHA'A ORGANIZATION GATHERING

May 28<sup>th</sup>, 2021

This event was organized by the SPE-KSA Trips & Social Activities (T&SA) team and was held at Ekha'a organization for girls with unknown parents. A group of 6 T&SA members and volunteers hosted an entertaining event for 13 of the girls of unknown parents, 3 supervisors at the Ekha'a and an adopting mother.

The event involved fun games and activities, followed by deep conversations with the girls about their ambitions and future aspirations. The volunteers also offered advice on the selection of colleges and careers, which was of high value to the girls.

The event ended with a promise that the communication will remain with the girls as all volunteers are glad and more than willing to act as mentors and supporters for the girls.

**Event Lead:** Nahid Aldossary  
**Written By:** Arwa AlHilal





## MILES FOR SMILES

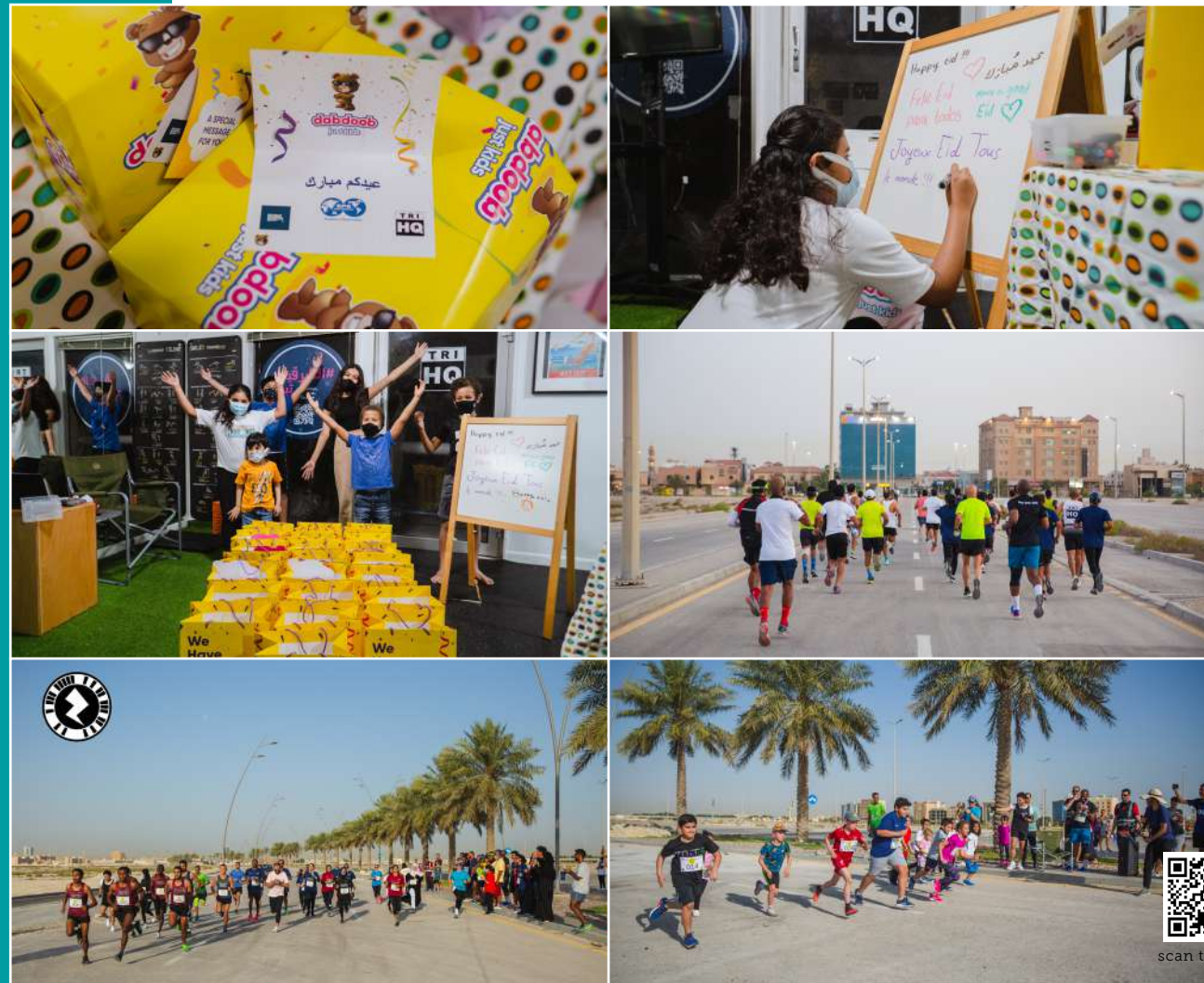
May 29<sup>th</sup>, 2021

The SPE-KSA T&SA team organized another exciting sporting event, in collaboration with TRI-HQ and Dabdoob. A total of 80 participants, with ages ranging from 3 to 63, joined the race. To accommodate the diverse age group, there were 3 races: 1km for children, 3km for family and 10km for adults. The event took place early in the day at Alfannar area, in compliance with COVID-19 precautionary measures.

Compared to previous sporting events organized by the T&SA team, what makes this event special is its noble cause. The team used all proceeds to buy Eid gifts for underprivileged families and children with illnesses. The event was a success as testified by the participants, volunteers and attendees.

**Event Lead:** Munirah Aldurwish

**Written By:** Arwa AlHilal



## T&SA TRIP TO ITHRA

June 7<sup>th</sup>, 2021

The SPE-KSA T&SA team wrapped up the activities of the term with a trip to Ithra Cultural Center for Ekhaa organization. The trip took place on June 7<sup>th</sup> with a total of 12 participants and 5 volunteers. The visit started at 5:00PM and lasted the whole evening, allowing visitors to wander through the remarkable galleries in Ithra, starting with Rehallat Gallery that simulates a trip around the Arabian Peninsula. The team then passed by Archive Gallery, which provides a historical overview of Saudi Aramco story with interesting media and documents that were collected over the years. Then, the team headed to the Islamic Gallery which showcases the history, evolution, function, interior and artefacts of Islamic mosques. The visitors also went by Terra Exhibit, which is a venue to explore and enjoy the works of various international artists that focus on sustainability. Last of all, the team enjoyed a delightful dinner before ending the visit.

With this, the T&SA team has ended the term on a successful note with a delightful visit that hosted a very special group.

**Event Lead:** Nada Aljuraib

**Written By:** Arwa AlHilal







# We take energy forward

We're committed to making energy safer, cleaner, and more efficient for people and the planet. By combining industry-leading technologies and services with operations in over 120 countries, we're collaborating with customers to transform the future of energy – everywhere.

//

We are on a mission to take energy forward – to deliver the highest efficiency solutions today in support of Vision 2030 and Saudi Aramco's IKTV program. As an energy technology company, we're focused on driving localization in the Kingdom, continually expanding our presence, bringing the most advanced technologies, helping enhance local manufacturing and supply chain capabilities, driving innovation and R&D, reducing our carbon footprint, and investing in building Saudi talent. We are committed to continue playing a role in driving Saudi Arabia's economic growth to become a global hub serving the world. //

**Abderrehmane Beloucif**  
Vice President,  
Saudi Arabia and Bahrain  
Baker Hughes



**80+ years**  
in Saudi Arabia



**2,800+**  
Employees



**2,000+**  
Saudi Employees



**50% of females**  
working in STEM fields



**4,000**  
indirect jobs



**1,350+ Saudi suppliers**  
in Baker Hughes  
supply chain



**150 gas turbines**  
and **120 compressors**  
in the Kingdom





# Baker Hughes Delivers Largest Remote Operations Solution in Support of Saudi Aramco's Ongoing Digital Transformation

Baker Hughes has deployed its industry-leading remote operations digital technology across Saudi Aramco's drilling operations, encompassing 200+ sites, the largest deployment of its kind in Baker Hughes' history.

Building upon Saudi Aramco's existing industry-leading data management infrastructure and capabilities, this project provides the company with a single solution that covers data aggregation from the edge; real-time, unified data streaming and visualization; data management; software development services; rig-site digital engineers; and monitoring personnel. The project supports Saudi Aramco's ongoing efforts to further drive digital opportunities and initiatives and to enhance operating performance and reduce emissions.

## About WellLink RT Service

- Remote monitoring personnel receive faster, higher quality, standardized, real-time data delivered through a modern user experience, enabling enhanced well monitoring and management.
- Field-based personnel have access to a unified view of wellsite operations from all providers on location, enabling effective and proactive mitigation of drilling hazards.
- Office-based personnel have easy access to current and historical well data for quick visualization and benchmarking, enabling proactive operations management with a direct line to the wellsite.

"This remote operations deployment, the largest in Baker Hughes' history, is a strong example of how we are investing for growth with customers who are driving digital transformation at a rapid pace, such as Aramco. We will continue to expand our upstream digital capabilities to transform core operations, improve efficiency and reduce emissions. I am proud of the Baker Hughes team's resilience in safely executing this complex project amid the challenges of the pandemic."

**Maria Claudia Borrás**  
Executive Vice President, Oilfield Services,  
Baker Hughes

By connecting all drilling sites with an integrated solution, Saudi Aramco enhances its view of its drilling operations in real time. Following the contract award to Baker Hughes in 2020, the combined teams worked in close collaboration and deployed the technology 50% faster than originally planned, despite working under pandemic conditions. Baker Hughes teams conducted more than 400 onshore and offshore trips across 350,000 kilometers (217,480 miles) to install rig-site edge devices and integrate data streaming, monitoring and visualization capabilities into Saudi Aramco's existing digital infrastructure.

To support the needs of 2,000+ end users and 247/ drilling operations, Baker Hughes and Saudi Aramco established a dedicated center staffed by a multi-disciplinary team of software engineers, data professionals and field service technicians. As part of Baker Hughes' localization strategy, the team is staffed with 90% Saudi nationals who are being cross-trained on essential digital competencies in data operations.

The Saudi Aramco deployment builds on Baker Hughes' remote operations capabilities, spanning remote drilling, logging, and production monitoring, to remote monitoring and diagnostic services for turbomachinery and large-scale industrial and renewable energy applications. Baker Hughes currently executes 87% of global drilling services jobs remotely, leading to consistently better outcomes for customers.







## 10-year anniversary for the Baker Hughes drill bits manufacturing facility in Saudi Arabia

In 2021, Baker Hughes celebrates the 10th anniversary for its Drill Bits Manufacturing Facility in Dhahran, Saudi Arabia. The facility recently expanded its localization capabilities and has produced more than 15,000 "Made in Saudi" drill bits, being exported to 45+ countries since the beginning of its operations a decade ago.

This milestone highlights Baker Hughes' commitment to localize manufacturing operations, and hire, train and develop Saudi nationals, in support of Saudi Vision 2030 and the In-Kingdom Total Value Add (IKTVA) program.



## Introducing new Mechanical Running Test capability in Saudi Arabia

On March 15th, 2021, Baker Hughes hosted Saudi Aramco for a tour at our multi-modal facility in the 2nd Industrial City in Dammam, Saudi Arabia to launch a new capability in the Kingdom.

During the tour, Baker Hughes celebrated the launch of the first ever Mechanical Running Test (MRT) to be conducted by Baker Hughes outside its Turbomachinery & Process Solutions headquarters in Italy.

The MRT of a compressor is a paramount activity to check rotodynamics and validate the design of a machine tailored to specific customer needs, which was certainly the case for this project.

This validation requires equipment, but most importantly knowledge and expertise from the local Baker Hughes team who now has a full set of skills to continuously support local customers and projects.

This milestone is a testament of the company's continued support of Vision 2030 and Saudi Aramco's IKTVA program, with a special focus on technology and

local capability advancement, and ecosystem and supply chain development.

The event was attended by a delegation from Saudi Aramco, led by Abdulkarim Alghamdi, Vice President of Project Management, who gave a keynote speech during the event. Speakers from Baker Hughes included Abderrahmane Beloucif, VP, Saudi and Bahrain, and Alberto Matucci, Vice President Equipment & Projects, Turbomachinery & Process Solutions.

**In 2019, Baker Hughes and Saudi Aramco celebrated the local manufacture of the first "Made in Saudi" gas compressor for the Haradh and Hawiyah Gas Compressor Project.**



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## Meet the Experts

A program designed to link our professionals with university students to share their experiences, job roles and future paths. The program allows students to interact, ask questions and network with experts in the same field. The sessions are moderated by our young engineers.

### Meet the Originators:



**Meshal Alshalan**  
SPE-KSA University Outreach  
(Team lead)



**Mutlaq Alotaibi**  
SPE-KSA Student Outreach  
(Team member)



**Abdolrahman Alsaif**  
SPE-KSA Student Outreach  
(Team member)



**Mohammed Alatique**  
SPE-KSA Student Outreach  
(Team member)



**Wala'a Alamairi**  
SPE-KSA Student Outreach  
(Team member)



**Asma Alahmadi**  
SPE-KSA Student Outreach  
(Team member)

## MTE Directors



**Hind Al-Rayes**  
P&PM specialist in PE&D



**Seba Almaghlouth**  
SPE-KSA Student Outreach Chairperson

## Objective & Goals

Meet the Experts (MTE) program was held for the first time within SPE-KSA on April 6th and 7th in order to empower our youth and provide them with the necessary knowledge prior to their professional career transitions. Throughout their decades-long journey in academia, university students and young professionals develop skills better-suited for a classroom than a professional environment. Upon their transition to the professional environment, however, they are faced with the arduous task of adapting to their new environment in a short period of time. While different resources, such as mentorship programs and professional seminars, exist to ease this transition, they are mostly present after the transition had already begun. The lack of similar resources prior to stepping into the professional world was the issue we sought to address. Thus, the student outreach team laid the plans for "Meet the Experts", to help prepare our young audience in advance for the professional environment in the oil & gas industry.

The program sets out to help students and young professionals take another step towards their careers in the industry, by connecting them to subject matter experts in their subjects of choice. The SMEs shed light on many misconceptions that the audience have developed over their long journeys as students and provide tips to help them navigate their way through the professional environment.

This unique structure allowed Meet the Experts to combine the benefits of tailored programs and public seminars, creating an enriching experience for those seeking specific topics or general benefits. Moreover, the invitation offered the chance for participants to volunteer to support the student outreach team in the live event.

In its first run, Meet the Experts attracted participants from different backgrounds, most of whom were from various Saudi universities, in addition to a few young professionals and students from global universities. The total number of submissions was over 190, with 61 volunteer offers.

The program started with inspiring remarks from the SPE-KSA Chairman, Abdulaziz Al-Sufayan, highlighting the importance of having MTE as a new enabler program that will have a substantial added value to students and young professionals. MTE explored four major themes: Petroleum Industry, Personal Branding, Industrial Revolution 4.0 and Interpersonal skills, with each theme having a dedicated SME speaker. The panel of SMEs was composed of diverse multidisciplinary representatives from SPE-KSA sponsors and leading petroleum companies within the Kingdom, such as Saudi Aramco, Schlumberger, Halliburton, and NESR. By sharing their rich experiences and best practices, the representatives from each company enlightened the young audience with the most common challenges encountered during the professional career transitions.

The plan forward for the MTE program is to ensure the program's continuity, expand the audience outreach, explore more themes, increase the volunteers' involvement and enhance the program to be in the best shape possible for the young leaders. The proposal is to conduct the program annually in order to establish a regular communication channel between students and young professionals and experts in the oil & gas industry.

**Written By:** Mutlaq Alotaibi & Meshal Alshalan



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## Acknowledgement



### Abdulaziz K. Al-Sufayan

*SPE-KSA Chairman*

*"I urge you all to capitalize on this unique opportunity to develop your skills and build your networks by connecting with experts and colleagues. Working together, we will ensure a bright and prosperous future for the industry in full alignment with our vision, which is a continuation and support to our Kingdom's vision."*



### Ross Armbruster

*Business Development Manager at Halliburton*

*"I was impressed with the large turnout and insightful questions from the students. Sessions such as these will allow students to acquire some useful information to finish their college education and preparation for a competitive job market. Thanks to SPE for taking the initiative to organize a great virtual learning session."*



### Hawazen Alnassief

*Environmental, Social and Governance & External Affairs VP at NESR*

*"MTE 2021 was a great initiative that addressed many important and timely topics such as the importance of personal branding. I enjoyed sharing my knowledge with, and learning from, the students. NESR is keen on contributing to the development and progress of the youth in Saudi Arabia through student-outreach, active engagement and knowledge-sharing. I would like to thank the organizers of MTE 2021 for creating great learning opportunities in the Kingdom and look forward to collaborating again in the future."*



### Mostafa Aldaboos

*Sales and Commercial Manager at Schlumberger*

*"I recently had the privilege of meeting with youth leaders via "Meet the Expert". Through the discussion, they put forward some excellent ideas on knowledge sharing which was presented by different group of experts. I have covered the topic "Drilling Automation Technologies" that are emerging today and will soon be shaping our future. Now that we are well into the Fourth Industrial Revolution, it's critical that we ensure that these new innovations are available so that we can continue to prosper our future. I was inspired to see the passion and dedication among these young leaders to drive the changes in our future, and I will be glad to see them in the upcoming events."*



### Bayan Molah

*KSA local Content Development Strategic Manager, Schlumberger*

*"I was pleased to participate in "Meet the Experts" event held by SPE-KSA Student outreach, which was a very great initiative connecting our future leaders with experienced professionals to share their experience and tips in different areas. Sharing an advice that I passed is: a person without a goal is a person without a meaningful life & when a goal matters enough to a person, that person will find a way to accomplish what, at first, seems impossible."*



### Stuart Burt

*Senior Professional in Business Communications disciplines at Saudi Aramco*

*"It was a pleasure and an honor to contribute to such a well-organized and attended event. If the SPE takes such care to promote the training of its young talent during the difficult times of COVID, then I know for sure that the young engineers of today are in great hands for their future development."*



## Volunteers Feedback



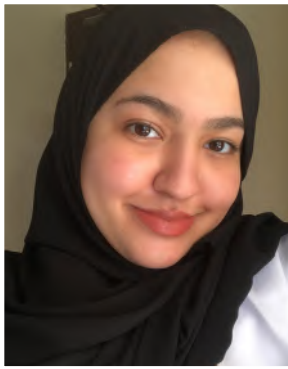
**Noor Abdullah AlDawood**  
 Prince Mohammad Bin Fahd University  
 Human Resources

*“It’s always significant to stay connected with professional experts, and that is what SPE-KSA Meet the Experts Program for. Creating a bridge from the past experiences, to the current and to the long view of the future. I had the privilege to meet and work with experienced professionals through participating in the program as a volunteer. In my opinion, the experience we get from volunteering is stronger and long-lasting for making great connections with proficient people, as well as, making work go smoothly with appreciation, enthusiasm and gratitude.”*



**Mbamarah Julia Chinelo**  
 Federal University of Technology  
 Petroleum Engineering

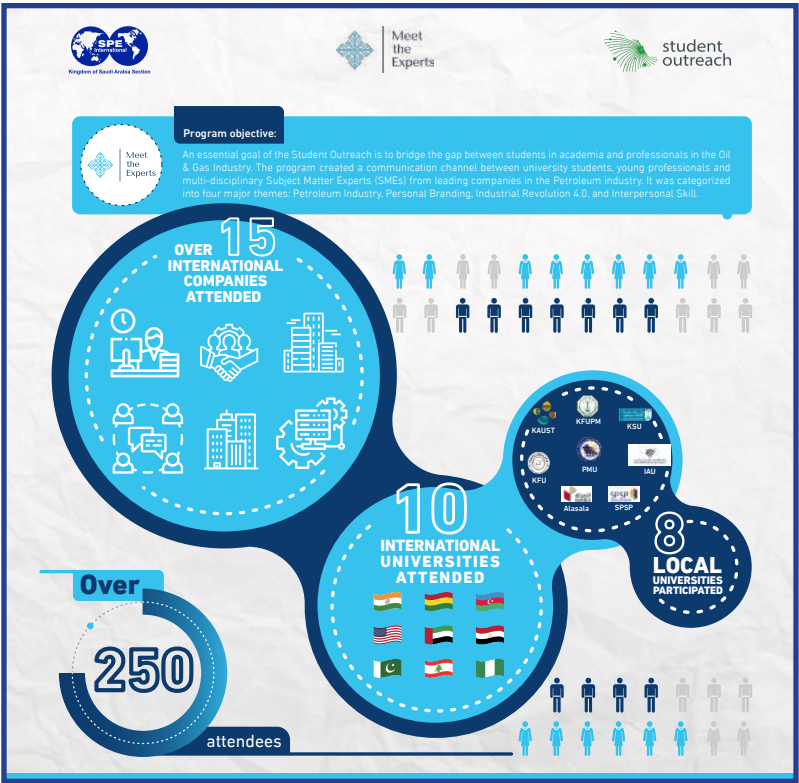
*“Gaining insight on the Petroleum Engineering Job outlook, how to strategically brand, the industry IR4.0 transformation and some critical skills for career progression, were the highlights of my experience. ‘Meet the experts’ was such an amazing experience and I am glad to have contributed to this program by relaying the concerns and questions of the participants.”*



**Waad Amin Al Bin Essa**  
 Imam Abdulrahman Bin Faisal University  
 Environmental Engineering

*“It was an unbelievable honour to be chosen to participate in such an enriching event. It definitely helped with my confidence to present in front of an audience, as well as my sense of responsibility towards a task. Most importantly, I have enjoyed being a link between the attendees and presenter. A very wonderful experience that I wish to achieve again. ”*

## MTE Statistics



## MTE Program Accessibility

Day 1



Petroleum Industry

Personal Barding

Day 2



Industrial Revaluation 4.0

Interpersonal Skills

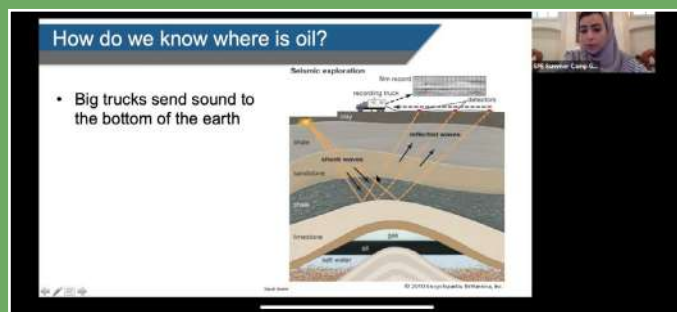
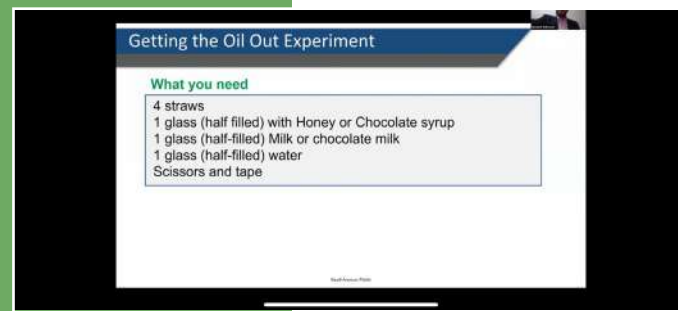
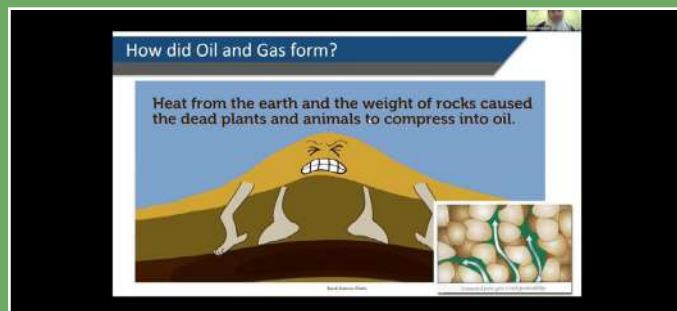


SPE-KSA Held the 2nd Edition of

## “ENERGY SUMMER CAMP” FOR ELEMENTARY SCHOOL STUDENTS

After 4 sessions packed with interactive learning, the Student Outreach team concluded the 2nd SPE-KSA Energy Summer Camp. Forty elementary school students (grades 4-6) attended the camp and were divided into groups based on age and language preference (Arabic/English). 8 SPE members volunteered as instructors and helped in delivering the program through Zoom. Through conducting interactive at-home experiments, the students learned about the different energy sources, how we extract oil and gas, and how to improve the future of energy.

Written By: Sarah Alamer



*"I have enjoyed my time teaching the kids during the SPE Summer Camp Program. To give back to the community and see how excited the children are to learn more about the energy industry is a rewarding experience. I was surprised of their intelligence and quick understanding despite their young age."*

**Layal AlHussain**  
Instructor

*"I am proud to be instructing in the summer camp program that deals with young, bright and talented kids. They are fast learners and link information quickly with our daily observations, which made the sessions smooth and fun."*

**Ziyad Alisa**  
Instructor

*"I am happy I had this experience to meet such talented young scientists; it shows a bright future for upcoming professionals in our industry. The sessions were fun and the students were very interactive."*

**Maram Ejaimi**  
Instructor

*"I had so much fun learning about energy resources. The projects were interesting and helped me understand the concepts behind each topic. I will take this knowledge for my future school projects, and advice my friends to join future SPE activities to learn as well. Thank you very much, looking forward to join the next summer camp."*



**Lama AlBurikan**  
5th grade student

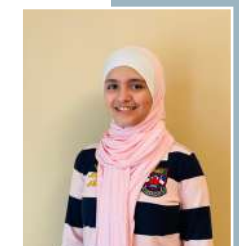
*"I learned about energy sources and the process of extracting the oil and gas and where we found it. The experiments were very fun and help us understand the density of different liquids; honey, oil, water, and milk. All instructors were amazing and interactive and explain every step in a simple way. This was great summer camp and would definitely join future SPE - camps."*



**Faisal AlGhamdi**  
6th grade student

*"The SPE summer camp was a great experience that has given us lots of knowledge on the different stages of oil production with experiments that were fun and educational about each stage."*

**Aya Ziadat** 6th grade student  
**Omar Ziadat** 4th grade student



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## 2021 SPE MENA REGIONAL QUALIFIER

### STUDENT OUTREACH SUCCESSFULLY LAUNCHES THE “MEGA EVENT”

On June 14th, 2021, the SPE-KSA Student Outreach (SO) Team successfully commenced the 2021 SPE MENA PetroBowl® Regional Qualifiers. Despite the challenges imposed by COVID-19, such as travel restrictions, the team’s dedication has led to an outstanding turnout for the virtual event. The event was attended by 30 universities from 12 countries, with a total of 24 judges who joined from Saudi Aramco, Schlumberger, and Weatherford.

The opening ceremony of PetroBowl was hosted by the Keynote Speaker, Dr. Bandar Al-Ghamdi, former SPE-KSA Chairman and General Supervisor of Reservoir Simulation Division at Saudi Aramco. Dr. Al-Ghamdi commended the PetroBowl organizing team for their outstanding achievement of hosting yet another successful event and shared his encouraging words with aspiring university students: “By being a participant today, you have already demonstrated that you have the initiative and confidence for the competition, which will serve you well in the industry.”

The event was carried out by a team of 23 volunteers, led by Rabab Al-Meshikhes, a Workover Engineer in Saudi Aramco. “As much as we hoped for the original PetroBowl - where we could all be physically together -we ensured that our version of PetroBowl combines the benefit and excitement that the original competition is well-known for. In addition, the team’s innovation and collaboration created an opportunity to continue the event virtually with a new set of rules and regulations that made it seamless for the participants. Overall, I am beyond happy to see that our efforts led to such success,” said Rabab Al-Meshikhes, Chair of the 2021 MENA PetroBowl.

A total of 29 matches took place over the period of two days. Two universities competed in every round, and each round was led by a moderator and assessed by a scorer, and a total of 3 experienced judges from the industry were present for further guidance. The majority of

universities that participated were first-timers, which made the rounds exciting and thrilling. “What I loved most about the event is how it was a huge step in the right direction. I am glad to see universities who were able to be with us without worrying about the logistics associated with attending the usual PetroBowl event,” said Muhannad Al-Abdulateef, one of the moderators and the Master of Ceremony of the event.

#### **Five Teams to Represent MENA Region in the International PetroBowl® Championship**

The event was an opportunity for 30 universities to demonstrate their knowledge and expertise by participating in the fast-paced quiz competition. In every round, each team was asked a total of 10 questions and given 10 seconds to answer. Experienced professional judges were present to review the answers provided and abide by the given rules to determine if the teams were deserving of credit or not.

“It was a thrilling experience being part of this great SPE tradition! I was not only fascinated by the competing minds from the top tier petroleum schools, but also by the efforts made by the PetroBowl team, who made this event both seamless and fulfilling”, said Abdullah Al-Ghamdi, a production engineering supervisor at Saudi Aramco, and a participating judge.

“The combination of learning, camaraderie, and superb organization adds up to a unique experience that we all want to have in such fine competition,” said Judge Dr. Wael Ziadat, who is the managing director of R&D in Weatherford Dhahran Techno Valley Center, who was particularly impressed by the level of excitement the competition had.





The winning team of this year's 2021 SPE MENA PetroBowl® Championship was participating in the Petroleum Engineering Department at King Fahd University of Petroleum & Minerals (KFUPM). The team's dedication not only yielded victory, but also provided invaluable learning experiences.

In addition, four other teams were qualified to represent the MENA region in the International PetroBowl® Championship, which will take place during the 2021 SPE Annual Technical Conference and Exhibition in Dubai, UAE. The teams representing the MENA Region in the International Championship are:

- **King Fahd University of Petroleum and Minerals, Saudi Arabia (Winners of 2021 SPE MENA Regional Qualifier)**
- **University of Engineering and Technology Lahore, Pakistan (Runner up of 2021 SPE MENA Regional Qualifier)**
- **King Abdullah University of Science and Technology, Saudi Arabia**
- **University of Mosul, Iraq**
- **University of Baghdad, Iraq**

The team leader of the University of Mosul, Omar Mohammed, said that, as this was his first time participating in PetroBowl, he was happy to qualify to reach the International Championship. University of Engineering & Technology in Lahore, Pakistan (U E&T Lahore), another team, qualified to compete in the international championship for the first time. U E&T Lahore team believed that the competition tested their knowledge, left a tremendous mark, and pushed their momentum.

The team leader of KAUST, Ruben Figueroa, also shared his enthusiasm for the upcoming International competition. "PetroBowl is an excellent chance for teams to showcase their



petroleum engineering knowledge. We will continue preparing and putting all our effort into representing KAUST and Saudi Arabia in the best way possible," said Figueroa.

### Concluding Remarks

PetroBowl® continues to grow in its popularity among industry professionals and university students. The opportunity to participate in this competition provides the teams with a chance to test their knowledge about the oil and gas industry, but also helps with establishing strong professional relationships with their mentors and team members.

Dr. Al-Ghamdi advised in his keynote speech to continue learning beyond the curriculum, explore the latest technologies, participate in conferences, and engage with experts. These are all opportunities that SPE-KSA will continue to provide to the youth as part of its proud tradition, and PetroBowl is one example.

**Written By:** Fatima Marzoog



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## The Recipe for Good Stress

### Stress: It's Not All Bad

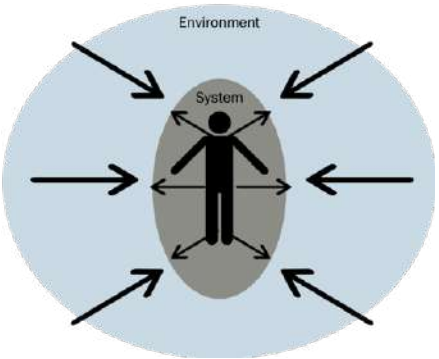


**Nora A Hamidaddin**  
Reservoir Simulation Engineer, Reservoir Description and Simulation Department  
Saudi Aramco

**DID YOU KNOW** that stress at work is as high as 80% in the US and 91% in Australia? According to the American Institute of Stress, of all stressed people, 77% experience physical health issues, 73% mental health, 48% sleeping issues, 51% depression, 61% anxiety, 45% irritability, 41% lack of motivation, and 36% headaches. Many may relate to these effects, but what about the other portion of people who are stressed, yet do not feel depressed, irritable, or demotivated? How are they handling stress?

### "Stress is a double-edged sword"

How is this portion of the population able to turn this double-edged sword into a useful, or at least non-harmful, tool?



To answer that, let us first look at it from a simpler perspective: a system (humans) and the environment (outer world). When the human body (system) is

exposed to an external environmental change that threatens its normal way of life and familiar lifestyle, the system responds by either shutting down or adapting to this change. Now replace the word "change" with "stress", and read that again.

For example, a simple living organism (system) is exposed to a sudden temperature drop (environmental change). In order to survive the new cold temperature, it has to adapt by developing thicker outer skin, or it will freeze and perish.

The stress of low temperatures is not bad in and of itself – it is what it is. However, it all depends on the response of the system to the stress; it is a matter of perspective. It will either utilize this as a chance to evolve; thus, the stress is considered good. Or it will not react, and this stress will eventually kill it.

The same concept is applied in other aspects of life. At work, stress could be from a new task or project, the changing of unit or department, or simply solving a particular challenge. At home, stress could be a new born baby, moving houses, or dealing with rent or other finances. Even going to the gym and exercising deals physical stress on the muscles. It is as simple as that. Stress is anything that forces us out of our comfort/safety zones, and it is stress that pushes us to physically, mentally, and emotionally develop.



Without stress, we remain stagnant.

So if stress pushes us to evolve and develop, and development is good, then stress must be good, right?

Yes and no. Stress is indifferent in its nature; however, how we deal with it and process it determines if it is good or bad. Here is a simple recipe to good stress:

The fear of stress is more stressful than the stress itself.

Perception:

The impact of a new stressor (a new project, paper proposal, presentation, competition, traumatic event) depends on how we perceive it – in a positive or negative light. We can break it down into pros and cons, list what we can learn from it, and be mentally prepared that mistakes can happen. The next time we take on a similar stressor, we will have definitely developed new skills and are more prepared.

Stress is additive and cumulative, it adds up until the body is overloaded.



Ability and Availability: On/Off Switch:

To manage stress properly:

- Understand your limits,
- Know your time availability,
- Recognize your level of preparedness and ability. Pick and choose which stresses you want to sign up for. Some stress is not within your control, and so to balance it out, reduce another stress that you have control over, and finally
- Start off small, test the water, see how it feels, and slowly add on to your plate as you feel more confident and capable.

Going to the gym is a controlled physical stress.

On/Off Switch:

Going to the gym is a physical stress, but it is a controlled stress, and that is an important distinction.

- It only happens a few times a week,
- Targets specific parts of the body at a time, and
- Involves sufficient recovery time between sessions for recuperation.

Your body is smart – it knows that this stress will most likely occur again. Thus, during the recovery period, your body will heal the strained muscle and will build more muscle to become stronger and more prepared for the next “stress” session!

This concept can be applied to all aspects in life – work stress, family stress and personal stress, to name a few. If we don’t take the time to step back, unwind, and recover, whether physically in the case of exercising, or mentally in most of other scenarios, then we are not giving ourselves the time to recuperate and adapt to this new stress, and we will soon burn out.

SO WHAT NOW? Next time you decide to take on a new stress/challenge, (1) think of it as an opportunity to develop, (2) manage the level of difficulty, and (3) make sure to turn your off switch frequently to be able to recover, adapt, and come back stronger.

Feeling intimidated from the stress, taking on too many stressors at once, and being stressed all the time – these make up the perfect recipe for a quick and painful burnout.

EXERCISE: Analyzing your current stressors and see how they rate based on the 3-step recipe above.

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# A New Methodology for Calculating Wellbore Pressure of Shut-in Wells in Numerical Reservoir Simulations



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## Abstract

In low permeability reservoirs, the pressure transient response of the buildup takes a long time to stabilize. During the history matching process, the observed non-stabilized buildup pressure cannot be compared to simulated well block pressure. This is because most reservoir simulators convert the well block pressure of flowing wells to wellbore pressure using Peaceman's equation, but do not perform this conversion for buildup pressure data. Such conversion is particularly important for low permeability reservoirs. This article discusses a new method to calculate the wellbore pressure of shut-in wells and highlights its benefits.

A full superposition equation for analytical wellbore pressure, without the usual logarithmic approximation of an Ei function, is the basis of the mathematical formulation proposed here. A modified equivalent radius concept, together with the superposition principle, are used to arrive at an expression to calculate the shut-in wellbore pressure from simulated well block pressure. To verify the validity of the approach, the calculated shut-in wellbore pressure is compared with analytical wellbore pressure described by the Horner function and also with the observed pressure of a field example.

## Introduction

When a pressure gauge is lowered into a well, it measures the wellbore bottom-hole pressure (BHP), which may be flowing or shut-in wellbore pressure.

For flowing wells, numerical simulators explicitly calculate, in general, well block pressure at each time step. Simulators then use Peaceman's equation<sup>1, 2</sup> to convert simulated well block pressure to equivalent wellbore pressure. During shut-in, most numerical simulators continue to calculate well block pressure, but report it as the wellbore pressure.

Fig. 1 is an example of the Eclipse simulation results of pressure vs. time data from a synthetic model. It shows that during the flow period, the well block pressure (WBP) is different from the wellbore pressure (WBHP). Fig. 1 also demonstrates that the simulator sets the wellbore pressure to well block pressure during well shut-in, because the wellbore pressure is assumed to be applicable only to flowing wells<sup>3</sup>.

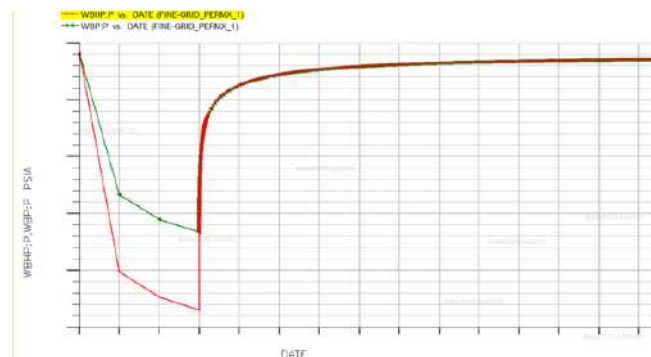


Figure 1: A comparison of well block pressure and wellbore BHP from an Eclipse simulation of a synthetic model.

If the final gauge reading during buildup stabilizes, the measured pressure represents the average drainage area pressure and is comparable to well block pressure. If gauge pressure is still building up at the end of the pressure survey, on the other hand, the final shut-in gauge pressure is not an average drainage area pressure. Simulated well block pressure is an average grid block pressure, and we should only compare it to stabilized historical pressure.

A key objective of history matching is to calibrate a model to historical datum pressures. If the final gauge reading during buildup does not stabilize and the simulated well block pressure is used for history matching purposes, it could lead to unrealistic adjustment of the reservoir model. We will show in this work that the simulated well block pressure in low permeability and with large simulation grid blocks may differ from the theoretical wellbore pressure and hence should not be used for history matching purposes. We will also propose a method to convert the WB pressure to true BHP which can be used for history matching. This will help to eliminate the need for perhaps unrealistic geomodel modifications during history matching.

## Methodology Description

For infinite acting well producing at a rate of  $q$  bbl/d for  $t_p$  hours and then shut-in, we can write the superposition equation as shown in Eqn. 5:

$$P_i - P_{(r, \Delta t)} = \theta \left( -Ei \left( \frac{-\alpha r^2}{(t_p + \Delta t)} \right) \right) - \theta \left( -Ei \left( \frac{-\alpha r^2}{\Delta t} \right) \right) \quad (5)$$

$$\theta = 70.6 \frac{q\beta\mu}{\kappa h}$$

$$\alpha = \left( \frac{948\phi\mu c_t}{\kappa} \right)$$

Equation 5 can then be written for distances  $r_o^*$  (radius corresponding to the pressure for a grid block) and  $r_w$  as:

$$P_{(r_o^*, \Delta t)} = P_i - \theta \left( -Ei \left( \frac{-\alpha r_o^{*2}}{(t_p + \Delta t)} \right) \right) + \theta \left( -Ei \left( \frac{-\alpha r_o^{*2}}{\Delta t} \right) \right) \quad (6)$$

$$P_{(r_w, \Delta t)} = P_i - \theta \left( -Ei \left( \frac{-\alpha r_w^2}{(t_p + \Delta t)} \right) \right) + \theta \left( -Ei \left( \frac{-\alpha r_w^2}{\Delta t} \right) \right) \quad (7)$$

where the SBHP =  $P(r_w, t)$ .

Subtracting Eqn. 6 from Eqn. 7 allows us to eliminate  $P_i$  and obtain:

$$P_{(r_o^*, \Delta t)} - P_{(r_w, \Delta t)} = \theta \left( -Ei \left( \frac{-\alpha r_o^{*2}}{(t_p + \Delta t)} \right) \right) - \theta \left( -Ei \left( \frac{-\alpha r_o^{*2}}{\Delta t} \right) \right) - \theta \left( -Ei \left( \frac{-\alpha r_w^2}{(t_p + \Delta t)} \right) \right) + \theta \left( -Ei \left( \frac{-\alpha r_w^2}{\Delta t} \right) \right) \quad (8)$$

Finally, we can compute the SBHP by re-arranging Eqn. 8 as:

$$P_{(r_w, \Delta t)} = P_{(r_o^*, \Delta t)} - \left[ \theta \left( -Ei \left( \frac{-\alpha r_o^{*2}}{(t_p + \Delta t)} \right) \right) - \theta \left( -Ei \left( \frac{-\alpha r_o^{*2}}{\Delta t} \right) \right) - \theta \left( -Ei \left( \frac{-\alpha r_w^2}{(t_p + \Delta t)} \right) \right) + \theta \left( -Ei \left( \frac{-\alpha r_w^2}{\Delta t} \right) \right) \right] \quad (9)$$

The first term on the right-hand side of Eqn. 9 is simulated grid pressure, while the remaining terms on the right-hand side are the rock, fluid, rate, and time data, which are readily available during the simulation run time. Therefore, the strategy for computing the SBHP is the application of a correction term to the simulated block pressure for a chosen grid block.

Calculating the SBHP from Eqn. 9, requires  $r_o^*$  first to be calculated.  $r_o^*$  is the distance from the mid-point of the grid (i) to a point inside the grid (i + 1), where the theoretical pressure in the grid is equal to the simulated grid pressure as illustrated in Fig. 2 for a well in the center of a grid block with size  $x$ .

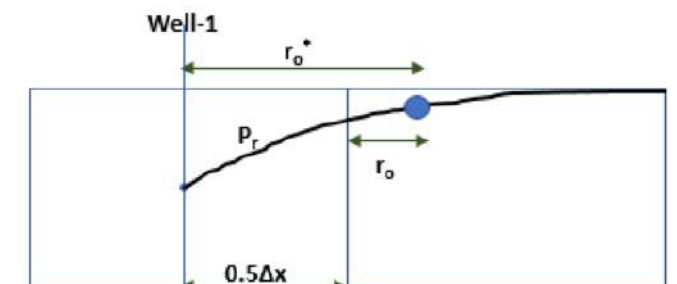


Figure 2: An illustration of the concept of the modified equivalent radius.



The pressure distance curve is described by Eqn. 10:

$$P(r) = P_{wf} + \frac{141.2q\beta\mu}{kh} \ln \frac{r}{r_w} \quad (10)$$

At the distance,  $r_o$ , the theoretical pressure ( $P_r$ ) is equal to the simulated grid(i + 1) pressure ( $P_o$ ), and  $r_o^* = 0.5 \times r_o = 0.82 \times r_o$  (detailed derivation in manuscript IPTC-21417)

$$P_{(r_w, \Delta t)} = P_i - 70.6 \frac{q\beta\mu}{kh} \ln \left( \frac{t_p + \Delta t}{\Delta t} \right) \quad (11)$$

where  $-Ei(-x) = \ln(1.78x)$

Equation 11 is known as Horner's equation, and it is the analytical solution to be used for validating the results from the proposed methodology. In the following sections, we will demonstrate the reliability of the proposed formulations using some

### Data Set Description

An Eclipse simulation model was constructed having a permeability of 1mD and grid size of 100ft \* 100ft. A single producing well, Well-P1, was defined in the model, which produces for 72 hours, followed with an extended shut-in for pressure buildup. Figure.3 shows the comparison between simulated well-block pressure, SBHP calculated using eq.9 and the analytical solution. It is observed that SBHP calculated by our proposed approach is more representative of analytical solution than well-block pressure.

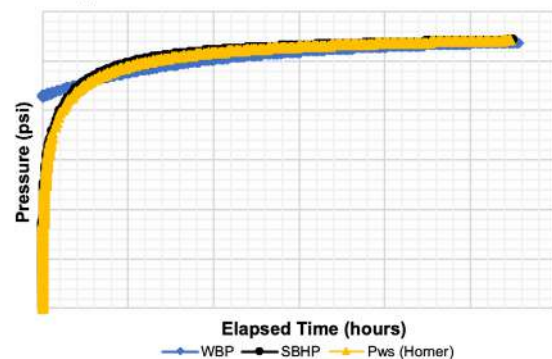


Figure 3: A comparison of the well block, SBHP, and the theoretical pressure buildup for the coarse grid low permeability model.

The Eclipse model was then refined. Fig.4 compares the well-block pressure, calculated SBHP and analytical solution. It is observed that when fine grid simulation is used, well-block pressure approaches theoretical solution. However, fine grid simulation is expensive in terms of run time. The practical benefit of SBHP calculation using the proposed approach is that it calculates results that are more representative of analytical solution regardless of whether the simulation grid is coarse or fine.

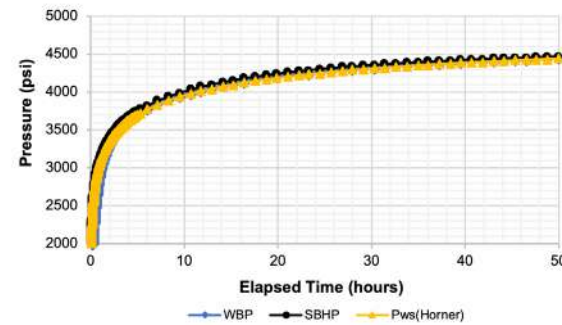


Figure 4: A comparison of the well block, SBHP, and theoretical pressure buildup in the fine grid low permeability model.

In another sensitivity, the coarse grid model permeability was changed to 100mD. It is observed in Fig.5 that in this large permeability model, WBP, SBHP and analytical solution are similar.

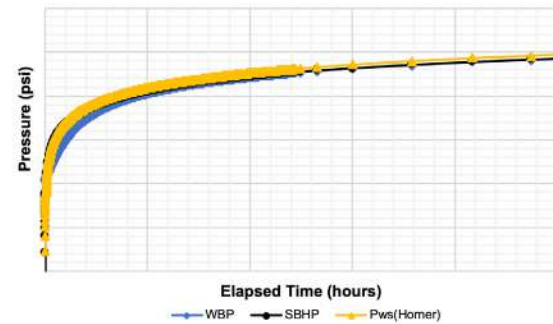


Figure 5: The comparison of the well block, SBHP, and theoretical pressure buildup for the coarse grid high permeability model

### Practical Application

The applicability of the proposed method was tested for a field example. As shown in Fig.6, while the well block pressure is higher than the observed pressure, the SBHP matches the observed data.

If history matching proceeds using the well block pressure data, then the engineer would need to make an adjustment like either reducing the geomodel aquifer size/strength, decreasing the geomodel hydrocarbon pore volume or other possibly unsubstantiated corrections to calibrate the well block pressure data to the observed pressure data. However, by using the SBHP, it can be concluded that no geomodel adjustment is necessary around this particular well because the SBHP is matching the observed pressure data adequately. Therefore, the use of SBHP will help avoid using unnecessary geomodel modifications during history matching.

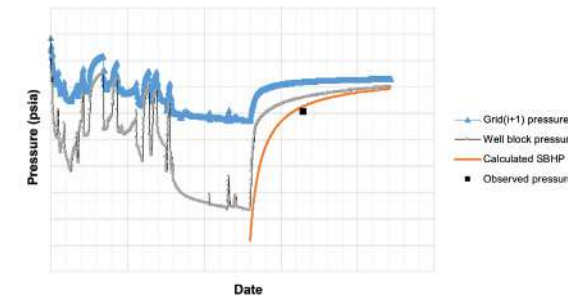


Figure 6: A comparison between the well block pressure and the SBHP on a producing well of a low permeability reservoir.

### Discussion of Results

- In high permeability reservoirs (and regardless of grid block size), the well block pressure is consistent with theoretical wellbore pressure after a few hours of shut-in.
- In low permeability reservoirs, the well block pressure is consistent with the theoretical wellbore pressure only if simulation uses finely gridded blocks.
- Regardless of permeability and grid block size, the SBHP is consistent with the theoretical wellbore pressure.

A detailed version of this article is available on [www.onepetro.org](http://www.onepetro.org) as IPTC-21417

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## How Writing Changed My Life



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It all began in the fifth grade, when a simple, elderly woman began to pave the way for my writing career. That woman is my grandmother. The profound friendship between us was the ignition for me to write my first words on a "Bank Notebook", gifted to me by a close relative. During the summer nights, after everyone went to sleep, we would prepare our favorite traditional drink, tea with milk, and spend our evenings with a bedtime story, narrated by a young-hearted, older woman.

I remember the room that we sat in and can recall every single detail, from the dimmed lights to the blue traditional pillows, the tree-shaped carpet and the wrinkled curtains. The sound of the window air conditioner was interspersing with the warm words coming out from my grandmother's heart. Once she began telling a story, I would prepare my cassette recorder and concentrate deeply on every scene detailed by her. In those nights, we were accompanied by dragons, three-headed snakes, berserk oceans, rainy skies, colorful characters and beautiful scenery. When the myths became intense and the story saw a plot twist, we would go for a light snack to refresh our minds and get back to our world of charming fantasy.

When the day comes, I would listen to my cassette again and try to rewrite the stories in a classic Arabic language, making me the youngest writer in a family

of writers. My father is a poet and the first person to see my scattered letters and scrawled words. He always gives me an impressed look and a hug, one filled with pride and tenderness. Once upon a time, while I sat on his lap, he said:

**"Did you write a new story today?"**

I held his hand, made a funny sound and said:

**"No."**

Then he showed me a booklet written by Microsoft word:

"This is your first book, keep it up my dear son. I am so proud of you." These words moved every single cell in my childish heart.

After my grandmother's death, I made it a habit to gather with my mother and aunt to listen to the dearest sound ever heard. A sound that influenced the first words written on an old notebook and caught by an ancient recorder. I could see the tears in their eyes and the deep whining brought by lovely memories.

When I was in high school, I began to travel and, therefore, a new writing journey began. I wrote about museums, nature, mountains, cultures, humorous moments and all the beautiful and terrible situations that I had experienced. I resumed writing in Oklahoma, where I was studying petroleum engineering, and worked on a journal. I was inspired by Oklahomans, who are nice people with a culture that resembles that of Arabia and by friends from the US, Nigeria, China, Columbia and Kuwait. I included a story of a Columbian girl who converted to Islam after a reading the Holy Qura'an, gifted to her by one of the Saudi students. I named that journal "مبتعث سياحي" which means "The Scholar-tourist".

A while after this period, I received a call from a relative who told me a story about her husband, who was always influenced by his tragic childhood. This is when I began to write the story of "Ali" and practiced the same habit: recording. When he told me his story, I saw the tears in his eyes, especially when he spoke about his grandfather's death. I published my first book, titled "لما يندمل" , which means "It

was never healed", referring to the profound wound left after all the tragedy that occurred in Ali's life. The book was showcased and sold at all gulf book fairs, which encouraged me to write my second book, published a year later, called "المنصة 666". The book was amongst the bestsellers at bookfairs in Riyadh, Sharja, Kuwait and Bahrain. In 2019, "Ghosts' Kingdoms" was published in November in the Sharja Book Fair Inauguration.

Writing is a sacred ritual for our souls. It allows us to express our deepest, inner thoughts and feelings and live in places that we have never been to. Writing will always be a friend of mine and a gate to the realm of imagination.



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## Social Media & Success



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Today, social media has undoubtedly become a part of our daily lives, and can be categorized as a tool for exchanging information and experiences through all directions including professional, personal and academic. Success is the vital factor that maintains our spirituality and motivation and is the fuel that drives us towards further accomplishments. Therefore, many of us may be wondering how important social media is to our success.

In the beginning, let us see why we are attracted to social networks. Interactive platforms, such as Facebook, Instagram, Twitter or Snapchat attractively engage our thoughts and encourage us to share our experiences, information or stories and also keep us updated with news and trends. Since all of us would love to be recognized and distinguished, receiving a "like" on posts we share is similar to having chocolate or going shopping or doing something that we enjoy. These experiences produce dopamine in our brains, which is a chemical that's associated with pleasure. Therefore, sharing a post is like taking a drug. The reason is because there is no guarantee that your post will be liked. It is the unpredictability of this process that makes it so repetitive and leads to addiction. If you know that you get likes for every post, it can quickly become boring.

When it comes to success in social media, we mostly tend to watch trends, read comments and count likes, and this explicitly drives people towards a

compulsive desire to be seen, leading to anxiety about what they are going to post to make sure that they are seen, heard and not missed. But what they do not realize is that this behavior drains our brains with no valuable or important results. Since success is the sum of small efforts made over a long time with repeated hard work day in and day out, sharing small details without a goal should not add to the final accomplishments, and will only be a waste of effort. Therefore, quantifying the purpose of using social media and finding a specific goal that correlates with our objectives and missions can ultimately add value to our accomplishments. Experts believe that mindful use of social media for students and employees can make them upskill and reskill to achieve better results. So, the goal is to be successful, and not just to look successful.

Sharing what we are trying to achieve in public has never been considered as a success measure. Moreover, privacy is the power that gives us the ability to achieve many things and to make us more sustainable in our lives. In fact, privacy is meant to be a personal standard because it demonstrates our assertive behavior. Its value can be justified in helping us narrow our focus to achieve significant results while keeping us away from distractions. "Just because you don't share it on social media, doesn't mean you're not up to big things. Live it and stay low key. Privacy is everything," is a quote by the American actor, Denzel Washington.

Time plays a crucial role in our accomplishments. It is one of the most important factors in our daily lives. Recent studies show that 90% of the entire world uses social media for an average of two hours a day. The study also found a link between types of social media use and mental health. These uses have been termed as "social media stressors". 'Highlighting Reels' for example, is classified as one of the highest stressors, and users are increasingly spending more time on it. Since everything we do can have a long-term impact on our lives, investing time in a productive way will make us achieve our goals and feel good about our accomplishments. For example, scientists reveal that spending an hour a day reading about any chosen subject will make you an expert within few years. So, dedicating these two hours towards reading a selected field related to our professions will definitely accelerate achieving our goals and ultimately feeling satisfied about attaining them.

In my point of view, social media is a tool that can be helpful when used wisely towards pursuing success; but, it should never be viewed as the seed of it. In the end, success can be achieved while making an effective use of social media, while maintaining our privacies along with utilizing our time effectively and efficiently.



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# Occupational Medicine: “The Fulcrum”

Key Medical Subspecialty for Safety, Health  
and Environment Across All Industries



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**Dr. Altayyar is a Fellow of the Royal College of Physicians and Surgeons of Canada in both Occupational Medicine and Internal Medicine. Additionally, he is American Board Certified in Internal Medicine and has a Diploma of Industrial Health. Additionally, he holds a Master's of Science in Engineering and Management, Systems Design and Management from MIT.**

**“Safety and health at work is not only sound economic policy, it is a basic human right...”**

- Kofi Annan, Secretary-General of the United Nations

**2.8 million** people die each year from work-related illnesses and injuries, as estimated by The International Labour Organization (ILO) and the International Commission on Occupational Health (ICOH).

## Benefits of a Healthy Workplace

According to the World Health Organization, “A healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety, and well-being of workers and the sustainability of the workplace.”

The Canadian Centre for Occupational Health and Safety further elaborates, “There is a strong connection between the health and well-being of people and their work environments. When people feel valued, respected, and satisfied in their jobs and work in safe, healthy environments, they are more

likely to be more productive and committed to their work. When the workplace is unsafe, stressful, or unhealthy, it impacts both the organization and the employees. Everyone benefits from a healthy workplace.”

Good work, whether unpaid or paid, is good for our health and well-being. On a grander scale, workers’ health is an essential prerequisite for household income, productivity, and economic development. Therefore, maintaining and restoring working capacity is critical to both employees and employers.

Moreover, the workplace should not be detrimental to health and well-being and should not present any avoidable risk to the workers’ physical, psychological, emotional, and social well-being, but rather should strengthen and promote their health. Thus, it can serve as a setting for delivering essential public health interventions and health promotion. For example, it can be used to integrate the prevention of non-communicable diseases, including cardiovascular diseases, cancer, diabetes, respiratory diseases, and to promote mental health. The workplace can additionally contribute to decreasing communicable disease through educating and protecting the workforce and, by extension, their families and ultimately the community at large.

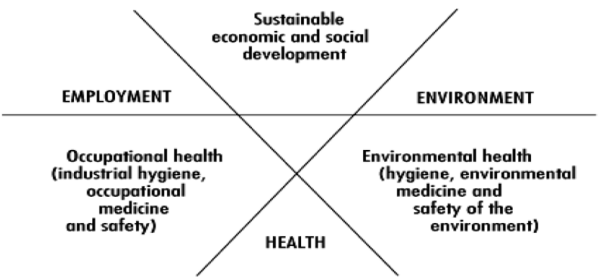
Improving workers’ health requires a comprehensive approach to protecting and promoting health at work, including but not limited to controlling occupational hazards, developing and enabling a healthy and safe physical, psychological, and social working environment, and encouraging healthy behavior.

This is where “Occupational Medicine and Environmental Health” come in as key players. The benefits of Occupational Health Services are many; however, the benefits can best be realized if the service is well positioned, enabled, and supported.

## Occupational Medicine

As a subspecialty of Medicine, Occupational Medicine provides a unique bridge between the clinical/scientific medical community, the business-based employer community, and governmental bodies and Academic establishments to understand and address both management and workers’ concerns and enhance employee health, workforce productivity, business performance, and the economy. I, therefore, consider Occupational Health as “The Fulcrum,” which allows interaction between multiple varying entities.

Occupational Medicine physicians are generally at the interface of multiple intersecting worlds, the worlds of the workers, employers, regulatory bodies, governmental and non-governmental entities, and Small and Medium businesses, in addition to large multibillion-dollar enterprises. They are equipped with a myriad of skills that traverse various medical and non-medical areas of expertise. They should ideally assume the role of the medical expert, be an excellent communicator and outstanding collaborator, great leader, and ferocious health advocate while maintaining the highest professional standards and contributing as a scholar to further develop this evolving field.



The above figure from the International Labour Office illustrates the interaction between occupational health and environmental health and their mutually supportive contribution to sustainable development.

Occupational Health providers focus on clinically and functionally assessing the impact of work on an individual’s and an organization’s health and the effect that the work and work environment have on the individual’s health. The services are provided for employees operating in diverse work environments with exposure to numerous physical, chemical, biological, ergonomic, and psychosocial risks. The role of occupational medicine continues to evolve and has most recently transformed into a “Total Workers Health” model.

## The Role of Occupational Health Professionals

Occupational Medicine Specialists are licensed physician specialists who have completed specialty training in Occupational Medicine and attained board certification in Occupational Medicine, conferred by a Fellowship of the Royal College of Physicians and Surgeons of Canada (FRCPC), The American Board of Preventive Medicine, or the UK Faculty of Occupational Medicine (FFOM) or other acknowledged and accredited Board certifications. They have multifaceted roles, including corporate medical consultants who ethically apply their medical knowledge and business acumen to help organizations achieve productivity and profitability while protecting and promoting the health and safety of employees and the work environment, usually collaborating with both Environmental Protection and Loss Prevention experts. To better understand some of the roles of an Occupational Medicine Physician, we must highlight some of their competencies as stated by the American College of Occupational and Environmental Medicine :

- **Ability to diagnose and treat occupational diseases and injuries and identify health outcomes of environmental exposures**
- **General knowledge of worksite operations and familiarity with toxic properties of materials and the potential hazards and stressors of work processes**



- Ability to determine an employee's physical and emotional fitness for work
- Ability to educate workers on health, wellness, and sanitation
- Proficiency in workers' compensation laws, regulatory requirements, and systems for maintaining medical records
- Ability to organize and manage the delivery of health services and sustain physician/patient confidentiality.

It is also worth noting that the objectives of WHO's Global Plan of Action on Workers' Health are:

- To devise and implement policy instruments on workers' health.
- To protect and promote health at the workplace.
- To improve the performance of and access to occupational health services.
- To provide and communicate evidence for action and practice.
- To incorporate workers' health into other policies.

These objectives only further highlight the importance of Occupational Health Services.

Johns Hopkins Aramco Healthcare

Currently, Johns Hopkins Aramco Healthcare (JHAH) has the only integrated Occupational & Environmental health services in Saudi Arabia and the region. The services provided align with Saudi Arabia's Vision 2030's strategic theme of transforming healthcare and improving living standards and safety. In addition, JHAH is uniquely equipped with the expertise to provide this service which can serve many people across multiple varying settings. Presently, the scope of service covers both JHAH and Saudi Aramco employees, with the potential to expand services to other organizations and industries.

Occupational health services improve the health of the working population, help prevent work-related illnesses or injuries, and provide early interventions for those who develop a health condition, thus preventing avoidable medical absences and increasing the efficiency and productivity of organizations. As workplace complexities increase, the role of both occupational and environmental health specialists becomes more critical to understanding the relationship between work and health. Work inevitably affects health as one's health affects the ability to work.

To learn more about JHAH's Occupational Health services, please visit [Occupational health | Johns Hopkins Aramco Healthcare \(jhah.com\)](#). You could additionally contact the author at [ahmed.tayyar@jhah.com](mailto:ahmed.tayyar@jhah.com) for more specific inquiries.

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SandRose Book Recommendations  
Learn, Grow & Be Inspired



Nouf Alotaibi  
Petroleum Engineer  
Saudi Aramco

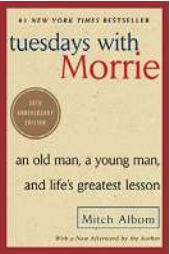
Tuesdays with Morrie  
Mitch Albom

"The truth is, you don't get satisfaction from those things. You know what really gives you satisfaction?"

"What?"

"Offering others what you have to give."

Tuesdays with Morrie Schwartz, Mitch Albom's college professor, takes you on a journey that changes your perception of how your life should be, and how you can go about changing it. Morrie, long before his disease, loved life. However, when he was diagnosed with ALS, he discovered the more important things in life, and wanted to pass on the message of a dying man - a message about love, sadness, happiness, and anger. Morrie gave Mitch lessons on how to live your best life, and how life is much simpler than it seems. This book is Morrie's final words to the world.

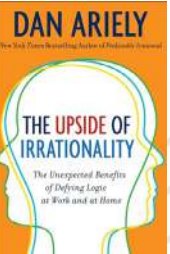


The Upside of Irrationality: The Unexpected Benefits of Defying Logic at Work and at Home  
Dan Ariely

"It is very difficult to make really big, important, life-changing decisions because we are all susceptible to a formidable array of decision biases. There are more of them than we realize, and they come to visit us more often than we like to admit."

Have you ever wondered what the relationship is between the size of the bonus that people get, and their motivation to work and their performance?

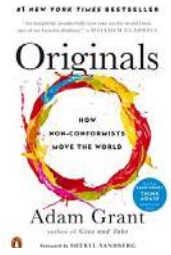
Have you ever wondered why people believe that their ideas are better than the ideas of others? In this book, Dan Ariely, a professor at Duke University, and his team, analyze behavioral economics and psychology through multiple experiments in order to understand how individuals react to the variable of irrationality. In its short and humorous chapters, the book showcases how human nature is simple, and analyzes the joys of work, short-term emotions and their long-term impacts, and how big bonuses might even be de-motivating.



How Non-conformists Move the World  
Adam M. Grant

"Argue like you're right and listen like you're wrong."

Adam Grant shows a powerful new perspective on not just our place in the world, but our potential to shake it up entirely. This book talks about how we can champion new ideas and fight groupthink and uses examples of studies and stories from business, politics, sports, and entertainment. The book explores how to recognize a good idea, speak up without getting silenced, choose the right time to act, and how leaders can build cultures that welcome different perspectives.



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## OUR YOUNG WRITERS

### A GREAT WAY TO UNDERSTANDING OTHERS

Did you know that the key to knowing one's emotions isn't just through their facial expressions? Paying attention to body language is one of the most accurate ways to understanding how a person is feeling - from looking into their eyes, to the position that their body is in, to even the way that they speak to you.

Body language is a reliable non-verbal indicator of a person's emotional status and is usually shown unconsciously and unintentionally. However, people who are more self-aware are skilled at controlling their body language. For example, they know not to cross their arms because that expresses the emotion of disagreement and or defensiveness, or other examples I am about to outline now.

Body language can reveal so many emotions like fear, anger, attraction, happy, trust, insecurity, and distance.

Sometimes, if you're observant enough, it could be easy to read body language, and maybe even catch a liar, too. Here are some examples: When people have their ankles locked together, it demonstrates that they are nervous about something or in the place that they are in, or are feeling uncomfortable. But it does have certain conditions: if their ankles are locked while sitting, they are feeling insecure and/or are uncomfortable. But if they are standing and their legs are crossed, it sends the message that they are comfortable listening/talking about this conversation and are in no rush to leave.

Standing straight with a solid posture and head high signals confidence, while slouching, head low, points out that this person might be feeling negative emotions of defeat or insecurity.

Open palms in front of them can show that they are being honest and sincere, and palms down maybe on a desk or a table can show aggression and dominance and authority.



**JURY BANDER  
ALGHAMDI**

We talked about crossed legs (one leg over the other) while standing but we haven't talked about while seated, which has two conditions. It is an indicator of comfort at the moment, IF the legs are pointing towards the person they're talking to. Those that point towards somewhere else, like a door, shows they desire to end the conversation or to escape.

Smiling is easy but can easily show if someone is being fake, and a way to know if the other person is being genuine, is to check if they have a slight wrinkle in the corner of their eyes or the raised cheeks. A fake smile is quite obvious to spot - the eyes or facial expression don't have the same "emotion" as demonstrated by their body language.

The eyes can tell a lot about your emotions, "the eyes are the windows to our soul," said William Shakespeare, as they can tell a lot about the relationship between you and your friend, whether they are comfortable around you, or happy to see you. It can also tell a lot with the emotions your friend is feeling at the moment. No eye contact indicates shyness, lack of confidence, and sometimes the distance between two people. A similar explanation is found in staring at the floor or at their feet.

There are ways of knowing whether the person you are talking to you is actually interested. For example, if they are leaning towards you with full eye contact, it means they are fully interested and aren't "lost in the clouds"; but leaning away can mean the opposite: A way to show their dislike or disagreement and distance, and also the desire to escape or end the conversation.

These are only a few, simple examples, but there are much more difficult (yet way more accurate) ways to identify people's hidden feelings and also their motivations.

I hope this article comes as helpful to most people because it can be a great form of understanding each other and becoming more self-aware with your words or actions. Psychology is so interesting and full of helpful information, so I decided to share some of the information I have learned.



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## The Society of Women Engineers (SWE)

### Dhahran Global Affiliate Hosts Virtual Panel to Mark International Women in Engineering Day

#### About SWE

A new global affiliate of SWE has been established in Dhahran, Saudi Arabia. SWE is a non-profit organization that was founded in 1950 with the vision to promote worldwide gender parity and equality in engineering and technology.

SWE's mission is to:

- Empower women to achieve their full potential in their careers as engineers
- Expand the image of the engineering profession as a positive force in improving quality of life
- Demonstrate the value of diversity and inclusion

The organization currently boasts over 42,000 members in over 70 different countries worldwide with a corporate partnership council consisting of juggernauts including Apple, Google, Boeing, BP and Baker Hughes. The establishment of the SWE-Dhahran global affiliate makes it the first in the Kingdom, and the fourth in the Gulf region.

#### History

In response to an increase in women pursuing employment opportunities in engineering after World War II, SWE was established in 1950 by 50 women representing the different US states as a not-for-profit educational and service organization. The women came together to elect the first SWE president, Beatrice Hicks, the inventor of the gas density switch (later used in the U.S. space program) and a fellow of the National Academy of Engineering, the highest professional honor in engineering. Many past and current members of SWE, like Beatrice, are leaders and trailblazers in their respective fields. In 2018, SPE awarded lifelong SWE member and Vice President of Engineering at Subsurface Consultants & Associates, C. Susan Howes, with SPE's Honorary Membership for her commitment and dedication to the oil and gas industry.

#### Why SWE-Dhahran?

Currently the Saudi female population accounts for 58% of the Kingdom's university graduates. However, despite this high percentage, the Saudi General Authority for Statistics' (GaStat's) Labor Force Survey reported that female participation currently stands at only 20.5%. Under the Vision 2030 reforms, the Kingdom has set a target to increase female labor force participation to 30% by 2030. Globally, the engineering sector has long been a male-dominated industry and this continues to be the case. Looking at the Kingdom, a World Economic Forum's 2020 Global Gender Gap Report showed that currently 15% of engineers in the Kingdom are females and that this value is expected to rise in the future.

SWE-Dhahran Global Affiliate was established by a group of female engineers with the hope of serving and supporting young Saudi females interested in entering the field of engineering and those who are already active in the industry. Ultimately, SWE-Dhahran aims to support Vision 2030's goal of increasing female participation in the labor force, with a focus on engineering sectors.

SWE-Dhahran launched their first event by celebrating International Women in Engineering Day (IWED) through hosting a virtual panel consisting of female luminaries in the field of science and engineering under the theme of "Making HerStory".

#### International Women in Engineering Day Panel

On the 23rd of June, 2021, the SWE Dhahran Global Affiliate organized a virtual panel consisting of shining examples of leading Saudi female engineers:

- Noor Shabib – VP of Strategy at Saudi Industrial Development Fund (SIDF)
- Dr. Reem Khoja – Post Doctoral Fellow at the University of California Irvine
- Fai Aldossary – First Female Foreman

The session was moderated by Dana Dabbousi, a chemical/biological engineering graduate. Opening remarks were also given by SWE-Dhahran's first president, Dr. Yara Alzahid. The session centered around the panelists' personal experiences as women working in the field of engineering, the challenges they faced and their achievements.

**"Advancing workplace diversity is more important today than ever before... Organizations that have mastered diversity and inclusion have a better chance of attracting and retaining the best talents."**

- VP of Strategy at SIDF, Noor Shabib

When addressing the question of how we can change the image of women as role models in STEM and develop the leaders of tomorrow, Dr. Reem Khojah eloquently called for the need to challenge the "have it all" culture, stating that **"you cannot have it all, all the time"**. Dr. Khojah also stated that **"the road to success is never glamorous,"** emphasizing on the need for honesty and transparency in projecting realistic expectations to young professionals in STEM.

Based on her extensive background in the engineering industry and as a member of executive management, Noor reflected on her time as a field engineer in India, when she was told that she wouldn't last in the field. Rather than focusing on proving the naysayers wrong, Noor came out of the experience with the realization that "the most important person I needed to prove myself to, was myself". In the face of adversity, Noor also advised attendees to work hard, power through and look at challenges as opportunities to learn and grow both personally and professionally.





Focusing on empowering women in leadership working in male-dominated roles, Foreman Fai Aldossary spoke on the importance of team-building to improve team dynamics and promote cohesion, irrespective of gender and industry. When asked to share a piece of advice based on her experience, Fai urged attendees to observe like a sponge by diversifying their knowledge, their careers and their networks stating that **“your network is your net worth”**.

The session was attended by over 70 participants from local companies and by other SWE global affiliates from India and from the United States and was well received by attendees. SWE-Dhahran will continue to offer a wide array of events, training opportunities and activities geared towards students, young professionals and industry veterans.

**swe**  
Society of Women Engineers  
Dhahran

RECAPTURING THE EVENT

# Making HerStory

June 23rd, 2021

**Noor Shabib**  
Vice President of  
Strategy & Business  
Development,  
SIDF

**Dr. Reem Khojah**  
Post Doctoral Fellow  
UC Irvine

**Fai Aldossary**  
Electrical Engineer  
& Forewoman,  
Saudi Aramco

**Moderator**  
**Dana Dabbousi**  
Chemical Engineer



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# THE 2021 SPE-KFUPM JOURNEY

The Society of Petroleum Engineers Student chapter of King Fahd University of Petroleum and Minerals (SPE-KFUPM) was established on the 1st of June 1996, with over 400 members comprising students and young professionals. Since its inception, SPE-KFUPM has strived to remain a platform for information dissemination and exchange of technical knowledge between its members and the oil and gas industry professionals. For its giant strides, it has received the SPE Gold Standard Chapter award in 2018 and has been a leading chapter in the Middle East and North African region (MENA). SPE-KFUPM provides its members with the opportunity and advantage of learning from industry leaders, professionals, and researchers of top-class worldwide.

## ***Extending SPE-KFUPM Outreach Through the Pandemic***

The world witnessed a pandemic that changed the way we carry out activities globally. Virtual programs are now the new order of the day. We took advantage of the situation and were able to reach a greater audience globally via our virtual programs. This allowed us to achieve an unprecedented number of programs and audiences weekly. Recently we held workshop sessions in collaboration with Schlumberger Saudi Arabia, with over 30 technical programs in 2021 alone. In line with the changes around the world, all our programs are hosted virtually, reducing the cost of hosting programs significantly. Also, we developed cost-effective strategies in carrying out SPE programs which include, but are not limited to, the development of a program management schedule and collaborations with other sister



societies to drive down the cost of hosting a large number of audiences during SPE events. More so, SPE programs recorded participation from all over the world as we keyed into digital outreach via LinkedIn, Twitter, and Instagram. Today we can proudly say that we have become a platform that companies like Saudi Aramco, Schlumberger, and Baker Hughes utilize to reach out to greater audiences via technical and professional programs. By achieving this, our members can reach and learn a great deal from industry professionals as well as secure mentors.

## ***2021 PetroBowl Champions***

Evident of the efforts put in by the student chapter as well as the staff and faculties of the College of Petroleum Engineering and Geosciences, the KFUPM team emerged as the PetroBowl champions of the MENA region in 2020 and proceeded to represent the region in the international PetroBowl competition. For the first time, we reached the Elite8 status (i.e., the top 8 chapters worldwide). This was a feat achieved through rigorous preparatory sessions and efforts by the team. With high hopes and expectations on our shoulders, the SPE-KFUPM PetroBowl team managed to win the 2021 MENA regional contest, having competed against 30 teams across the region. The journey was not quite straightforward as the team had to compete with the strongest teams in the MENA region. However, with special strategies and high-quality leadership skills, the team was able to accomplish the target and won the trophy. Such a story should be written with golden pens and diamond papers but instead, it will be relayed through this paper with the hope of not being forgotten.

## ***SPE-KFUPM 25th Anniversary – 1 Billion Step Challenge***

These among many great achievements by the chapter is the results of concerted efforts by the members to achieve much greater targets as we mark our 25th Anniversary this year. We have planned a 1 billion step challenge, which will be held later in the year with the participation of the entire university community. This would be the biggest single organization planned event in the university and would demonstrated to the community the importance of SPE and what they stand to gain. With this said, we can boastfully say our programs have enriched the student members and created an enabling environment for growth, in line with SPE's vision. This is a feat achieved by industry-academia integration.

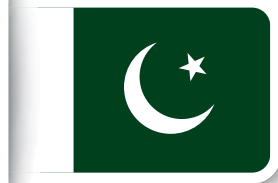
## ***Extending our programs to cover beyond-classroom activities***

Furthermore, as part of our programs for next semester, we look forward to hosting physical webinar sessions with areas of interest cutting across technical and non-technical skills, especially those that are not taught within the walls of the classroom. More so, we have planned programs for the health weeks to sensitize our members about how to best care for their mental and physical wellbeing. So, it's safe to say, we have the year packed with interesting programs and we aim as a society to set the pace that others will follow. Lastly, we could not have achieved all the aforementioned without the ever-supporting management of KFUPM, as well as the ever-supportive industry partners around us. We can not list them all but we heartfully acknowledge all efforts and support given to the society, knowingly and unknowingly, by all parties. So, we pledge to continue to push the boundaries of industry-academic collaboration and provide avenues for our members' personal and professional development.



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### ***Leading the Stage Towards Innovation***

As difficult as the pandemic has been on our country, Pakistan, and with all sectors caught in the strings of a long-lasting lockdown, SPE-UET Lahore Chapter was able to advance its excellence through utilizing technology to extend outreach, focusing on innovative methods for personal development, and marking its presence on the international stage. The chapter, being success-oriented in its mission, has allowed the members to become more in line with the latest development and trends in the oil and gas industry.

### ***Linking People and Ideas***

SPE-UET LC has made its mark to collect, disseminate and exchange technical knowledge concerning the essential sectors (exploration, development, and production) of oil and gas and related technologies for the public benefit; and to provide new grounds to its affiliates, proving their technical and professional competencies. The transformation of this conventional world into a virtual one has directed our efforts towards new strategies. In fact, technology has established a social tool to reach out to its members. Since then, the chapter has reached beyond borders through its social media platforms to interact with and discover the world. At present, we are reflecting ourselves through various social media sites (Facebook, Twitter, LinkedIn, and Instagram). These sites are leading promoters of our chapter. Through virtual meetups and public relation resources, we recently led a successful extension lecture on "Hydrocarbon Resource Assessment". Providing an opportunity for university students to take part in this prestigious chapter, we conducted "Induction Drive'21" in May, and the response was remarkable. In this chain to reach its members, the chapter held an orientation session, comprising various intriguing activities to interact with and boost the confidence of the newly joined members.



### ***Striving for Personal Development***

SPE-UET LC has always been successful in overwhelming the sense of personal development goals amidst its individuals. For the last two years, the chapter has added community services to its activities. Visiting the orphanage institutions, various schools, and colleges in slums and guiding the young students about their higher studies and career options in the future is another aspect of promoting the chapter for the betterment of the community. Lahore chapter, in collaboration with the SPE-Pakistan Section, is refining its individuals in research and development projects. For the past five years, SPE-UET LC actively participated in Annual Technical Conferences organized by SPE-Pakistan Section through student papers as well as establishing stalls at the exhibition. Moreover, SPE-UET LC participated in the 2021 MENA Regional PetroBowl championships (organized by SPE-KSA) and achieved 2nd place behind KFUPM. This achievement highlights the technical capabilities and tremendous efforts that this chapter has worked on towards developing highly competent and skilled individuals to join the oil and gas industry.

### ***Global Recognition***

It is rightly said that "Success is a ladder that cannot be climbed with your hands in your pockets". Moving on with the triumphal stories where acknowledgment comes first, this chapter has always recognized the services, participation, and contributions by the guest speakers, high achieving student members, and team members through souvenirs, certifications, and prizes. One of the chapter's notable achievements is the international recognition by SPE in the form of a Gold Standard Certification in the terms 2014-2015 and 2017-2018.

The novella of our success does not end here, as our brilliant members continue to excel in different academic sessions and have participated in the Regional Student Paper Contest of SPE MENA held in Bahrain in 2019, which led to the selection of Mr. Arslan's abstract amongst eleven other finalists. Furthermore, Mr. Malik Atif secured 3rd place in ATC Pakistan, held in September 2019 at Islamabad. Last decade was the guarantor of our supernova as we secured 5th position in ADIPEC'19.

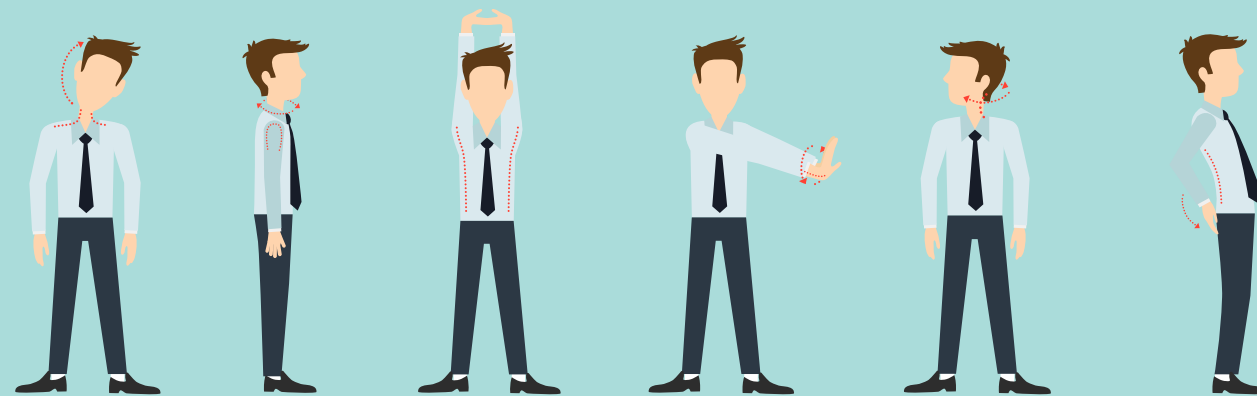
### ***Rising Towards New Goals***

We all know that every cloud has a silver lining. Towards the end of this year, SPE-UET LC has fastened its seatbelt to ride through the odds and to enrich its affiliates through utilizing the arenas of technical advancements, leadership development, problem-solving strategies and professional skill development. These hard times have provided us with numerous domains where we can push ourselves to explore new alternatives in the oil and gas sector. We are planning our interactive activities to go forward with more technical and social events so that the world can see the empowered face of this chapter and its people.

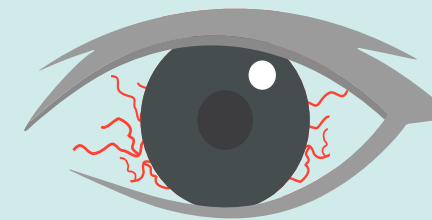
## OFFICE SYNDROME SYMPTOMS



## TO PREVENT OFFICE SYNDROME

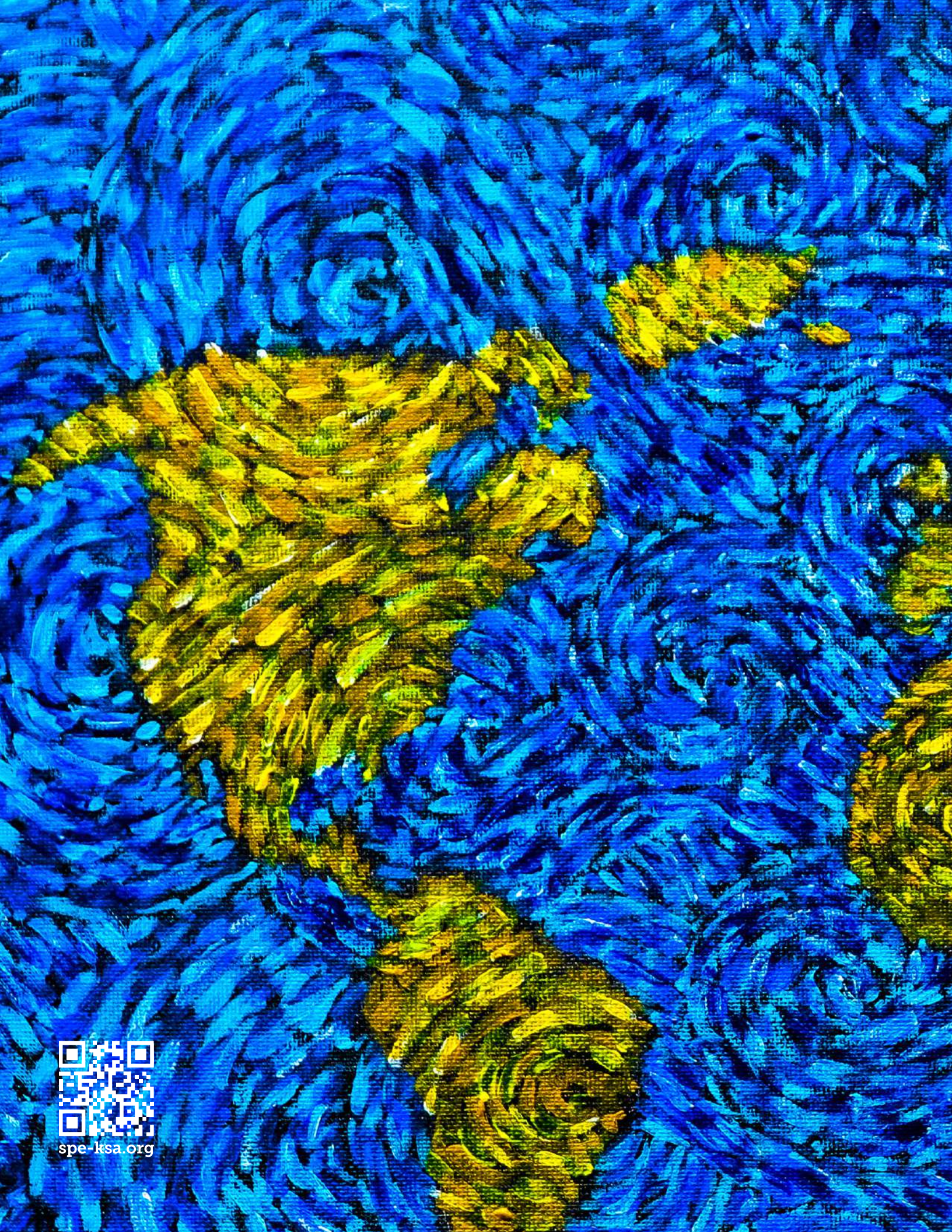


Adjust your  
sitting position  
Position the  
monitor 50 to 80 cm  
away from your eyes



Follow the 20-20-20 rule  
Look at an object 20 feet  
away from you for 20  
seconds every 20 minutes





[spe-ksa.org](http://spe-ksa.org)