Stephen Taylor
Devon

Randy John
ConocoPhillips

Jarle Husebø
Equinor

12 DAY | FEB MONTH | 2019 YEAR

SPE

Digital Transformation

Lunch & Learn Summary

During this lunch-and-learn, we focused on "News Ways of Working" with panelists from Devon, Hess, and Equinor. This summary includes notes, questions from the panel discussion, and select pictures from the event. Thank you to those who attended, and see everyone next time.

THANK YOU TO OUR VOLUNTEERS

We would like to recognize:

- **Dale Hayes** (D.R. Hayes, P.E.),
- **Mauricio Fernandez** (SAS), and
- **Stacey Sanchez** (Equinor)

for volunteering at this event. We appreciate and value our volunteers, fellow SPE committee members, and moderators.

Jim Claunch
Equinor

Moderator:
New ways of working

Stephen Taylor

is the Global Head of Technology for Analytics, Reporting, Integration, and Software Engineering at Devon Energy Corporation.

Over the last 25 years, Stephen has led companies through transformations and created sustainable competitive advantage, through innovative applications of advanced analytics, data management and software engineering. Prior to joining Devon, Stephen has run multiple startups, held leadership positions with companies like Chesapeake, and has delivered on critical programs for companies like ConocoPhillips, Target, and Pfizer. Mr. Taylor received his Bachelor of Science in Management of Information Systems from Oklahoma State University.

Presentation Notes:

- No slide deck to share
- Introduced Ray Kurzweil (Google's CTO) and exponential technology growth
- One graph shows the world of computing over the last 20 years, but over the last five years very significant changes. Prediction is that over the next 5 to 10 years we're going to see some very drastic changes we're starting to see the cultural shifts that are happening that are due to computing power, 5G and the implications that it's related to oilfield connectivity
- Humans think linearly versus exponentially
- Impact is now being observed with cultural shifts
- Target is 2020-2030 timeframe (do you have the elements in place to be successful during this shift?)
- Technology adoption is happening at a very fast rate in our organizations, much faster than people have predicted. For example, we no longer want accountants to be doing manual accounting work, we want them applying their knowledge of accounting to figure out how to automate invoice reconciliation. Maverick research put out a paper on digital transformation discussing that most of the large companies and super majors are investing in a way that we can't compete. National oil companies can move faster than the independents as we have this huge Legacy infrastructure we don't have this huge budget that allow us to stay ahead so there are 3 options
- If we stay doing things the way we've always done with the staff we have, we will not compete; **We either join forces with other companies or die**; Those are the options
- At Devon legacy, sensors and equipment & controls is an ecosystem problem; It's not a computer problem anymore;
    - For example, in their Canadian office they moved to management by exception resulting in a 40% reduction in in G&A, 30% reduction in LOE and 20% increased production by just switching the way they were doing things
- Other ways they are doing things different and improving is by scaling from small pilots and pads to large fields
- Challenges are vendors ability to integrate with each other and forcing closed technologies
- Adoption rates are much faster than previously predicted
- **IT is no longer an IT thing**
- **How do we enable people to be self-service and have it be scalable?**
- Maverick Research: Paper on Digital Transformation, predicted large companies are investing in ways others cannot compete (R&D and Innovation budgets are very large at super majors)
- Smaller, more agile companies don't have historical IT/OT issues the larger companies have had
- **Lead, join forces, or die**
- How do we focus those operational activities? Leverage the engineers as SMEs and give them the tools they need to succeed
- **Build the software ecosystem** (it's an ecosystem problem, not a computing problem anymore)
- **Less important to do things incrementally, but rather, do it exponentially**
- **Challenge: Internal processes and controls (we stand in our own way)**
- Improving market depths to scale equipment without adding headcount
- **Cultural transformation: Empower business users, centralize and open access to data, business decisions made on data versus gut feelings**
- Do you make decisions based on data? (Usually no…)
- Legacy ecosystems: Technologies, service company vendors, etc. (our industry is way behind)

Randy John

is the Director of IT for Global Wells, Health, Safety, & Environment, Marine, and Corporate Planning at ConocoPhillips.

Since 2004, Randy has supported ConocoPhillips in the Finance function, led several teams in the IT Infrastructure organization, and most recently leading efforts in Enterprise IT Services. He has led the enterprise through digital transformation with innovative avenues such as Robotics Process Automation, Machine Learning, and Natural Language Processing. His current responsibilities also include managing the application portfolio and global IT projects in the enterprise space. Randy received his Bachelor of Arts in Business Administration with an emphasis in Finance from Oklahoma Wesleyan University.

Presentation Notes:

- **Customers want real time data**
- Board and executives are all over data and analytics (top down push)
- 2019: Rolled out analytics 2.0
- Proactive approach
- **Citizen data scientists**
- Who has the passion/interest/wants to learn? Let's equip you to do this yourself (**self service**)
- Digitalization/platforms is really enabling this new working model
- Low cost of compute and connectivity is allowing the above to occur and have folks become more innovative in their work
- **Goals to innovate (and time to innovate)**
- **Stealth Team**: Quickly fix problems; need to focus 75% on standard work, and allow for 25% to innovate
- Skills include: RPA, natural language processing, drone technology, etc.
- Drive POCs/POSs
- Virtual expert team to learn (and play)
    - Created a virtual expert stealth team, multidisciplinary team that has hunger to learn all these things like robotics process automation machine learning natural language processing, so they have the tool that enable them to do their job providing them an opportunity to learn
        - **Biggest roadblock to all this is the support required internally, after you put it in place**
- **Data: Have openness to your data**
- Get past the job security illusion of keeping data to yourself
- Have one data model (regardless of well, safety, etc. data that can be shared across the company)
- Adoption of Microsoft Teams as a collaboration platform of new ways of working (OneDrive, Skype, OneNote, etc.)
    - The point is to have everything centralized so everyone can see. It breaks down some of the silos
- As an IT person what customers want is real-time data. How do I deliver that real-time data?
- They have put in place some new ways to work within the enterprise
- Looking back, COP in 2017 rolled out an Analytics approach, top down approach with the commitment from the Executives and the board, but this approach was wide and shallow
- In 2018, COP rolled out analytics 2.0 which is narrower and deeper with a push to get the employees more involved and with more proactive analytics
    - First, ConocoPhillips rolled out the citizen scientist as opposed to the employee going to IT and asking for reports; Some of the goals were
        - **Empowering the business user**
        - Use their current knowledge and fill in the gaps
        - Use digital platforms with tools available at their fingerprints so they are not waiting in line for IT
        - Foster the teams to generate innovative ideas to come into the organization enabled by unlimited compute, unlimited connectivity take time to innovate from your day to day activities

Jarle Husebø

is the leader for Digital Business Solutions in Equinor Development and Production International.

He is responsible for developing and deploying new digital solutions for the business including the Integrated Remote Operations Centers (IROC) for Equinor's Global Unconventionals business. He has worked for Equinor for 10 years in both operational and technology development positions, and has lead several projects in Europe, Asia and USA. Jarle has a Masters in petroleum technology and a Ph.D. in reservoir physics from the University of Bergen.

Presentation Notes:

- Slides will be shared with attendees (*images included below)*
- **Not about the technology, it's about the people**
- Integrated Remote Operations Center (IROC): Data to drive decisions in the field
- Change how decisions are made:
    - Discovery
    - Insights
    - Actions
- Management by Exception (MBE): Specialists respond to exceptions (exceptions dispatched versus routine daily visit to every pad)
    - Well becomes the customer (person only visits a well as needed)
- Change management dealing with field personnel:
    - Good job on engaging at all levels (to understand what everyone does)
    - Communicate it is not about reducing staff (efficiency and value provided improve)
    - Lesson learned: Take in the wants, but don't need to necessarily cater to all the requests (prioritize, does it provide value, be careful with the "nice to haves"

- **If you don't drive a KPI you are not creating value**
- Jarle lead a project called IROC; Some of the themes when they started the group were
- Cross functional collaboration; Teams looking at the same data but doing different things with it
- Management by exception, allowing the data to drive decisions; **People taking the right actions at the right time**
- They implement a master data management called Omnia which is supported by Azure; This allowed them to manage information in one place
- One of the lessons learned was to scope the project before you jump on it; They created awesome analytics and great dashboards but, in the end, it didn't drive any decisions
- Some of the project didn't bring huge value, maybe only 2 hours of savings but were not strategic; Now they ask the question "why do you need that" so you can find out how to drive more value out of the project and scope it right
- **Had to rethink the way they engaged operators in the field and have them realize that their job is not on the line but through the digital transformation they could bring more value**
- For management by exception is important to have good sensor data but now by using streaming analytics they can create more value that they were able to create in their whole career; Now the user buys into the digital transformation process

Q&A:

- Stephen to Jarle: How to predict failures when current infrastructure wasn't capturing the right data?
  - How to convince OT and how to time it all?
  - Jarle: We are not mature, we didn't have many "legacy" systems in place, so we are putting into place what hadn't existed previously
- Skip: Differentiating Edge?
  - Jarle: Yes, virtualizing hardware
  - Comment on Baker Hughes: Invidia (GPU acceleration, using the Jetson minicomputer)
  - Power is a challenge in the Onshore world (with regards to Edge devices)
- How to achieve making project managers data scientists as part of the Stealth Team?
  - Moving to an agile framework, instead of project managers, go to product owners as citizen data scientists (learn python, get more proactive, get equipped with more tools)
- What does the governance body look like?
  - Cross-functional team, reporting up to IT, but also other business units (engineers, etc.)
  - Prioritizes efforts, identify duplication efforts
- How to get around automation role issues with internal processes (around RPA) – get with ConocoPhillips and Devon and Equinor to get more standards in place to go to the service providers and get "intelligent automations"
  - Do you have the right automations in place (more than just RPA), do you have the right orchestration in place?
- Influencing senior decision makers to make decisions in a new/different way:
  - NextGenERP: What does the next solution look like?
  - Every decision that is made is made considering how it impacts NExtGEnERP
  - New governance body starting to ask how it impacts the new ERP solution
  - Stephen (Devon): Decision framework is changing, but still case by case (global versus local)
- Slides will be shared with attendees
- Question to what is #1 to service companies?
  - Stop selling, modernize your selling approach; work as an ecosystem as an industry together with the service providers; must collaborate
- Exceptions question on how you expand in the field: Act global think local
  - Start with a local execution as a way to mature the process
  - Working out all the kinks of a complete AI Rig (unmanned)

The following pages are some photos from the event.

Thank you for exploring this summary.

Until next time.

Cari Day Dumais
Equinor

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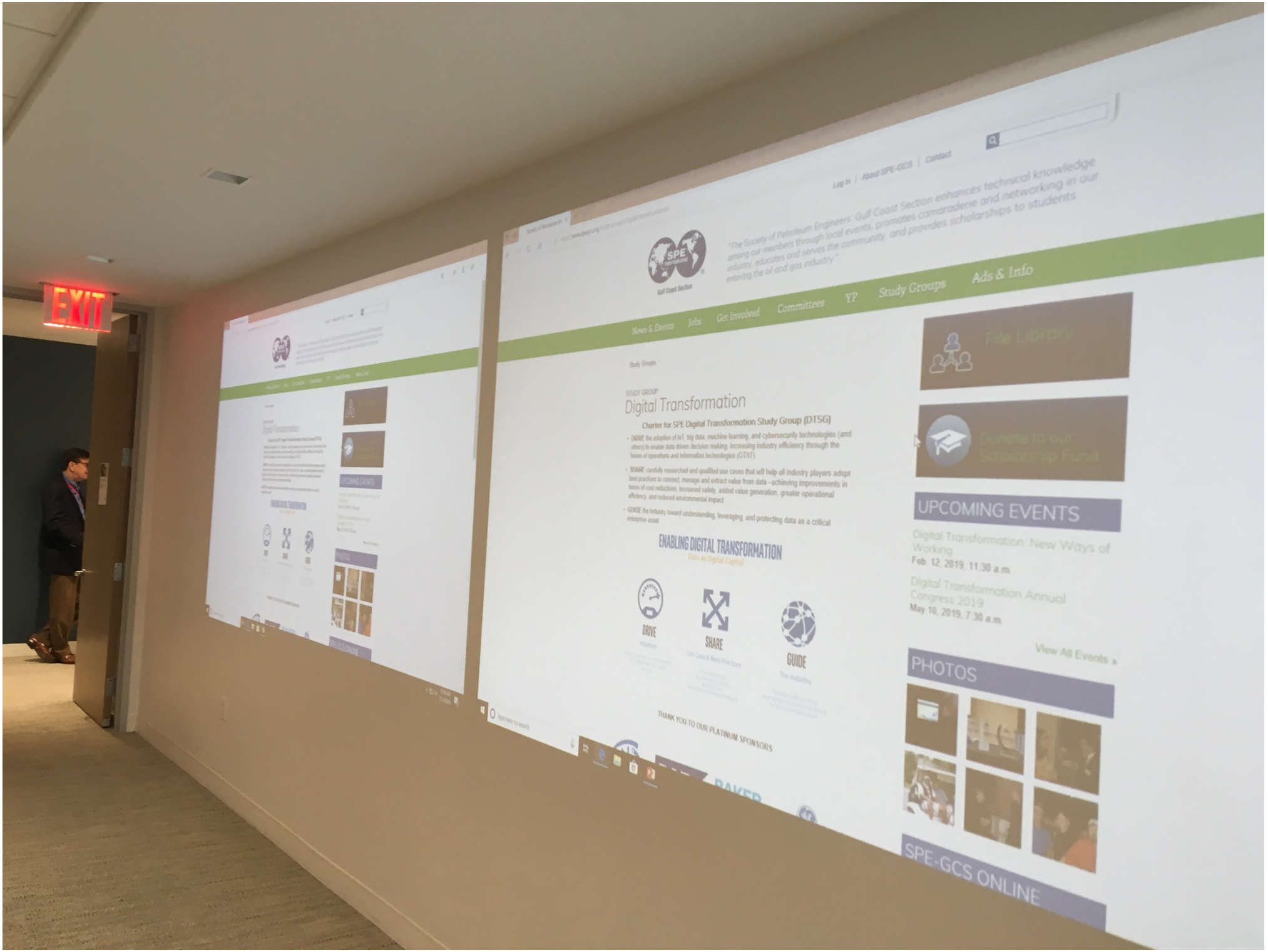
Knowledge Sharing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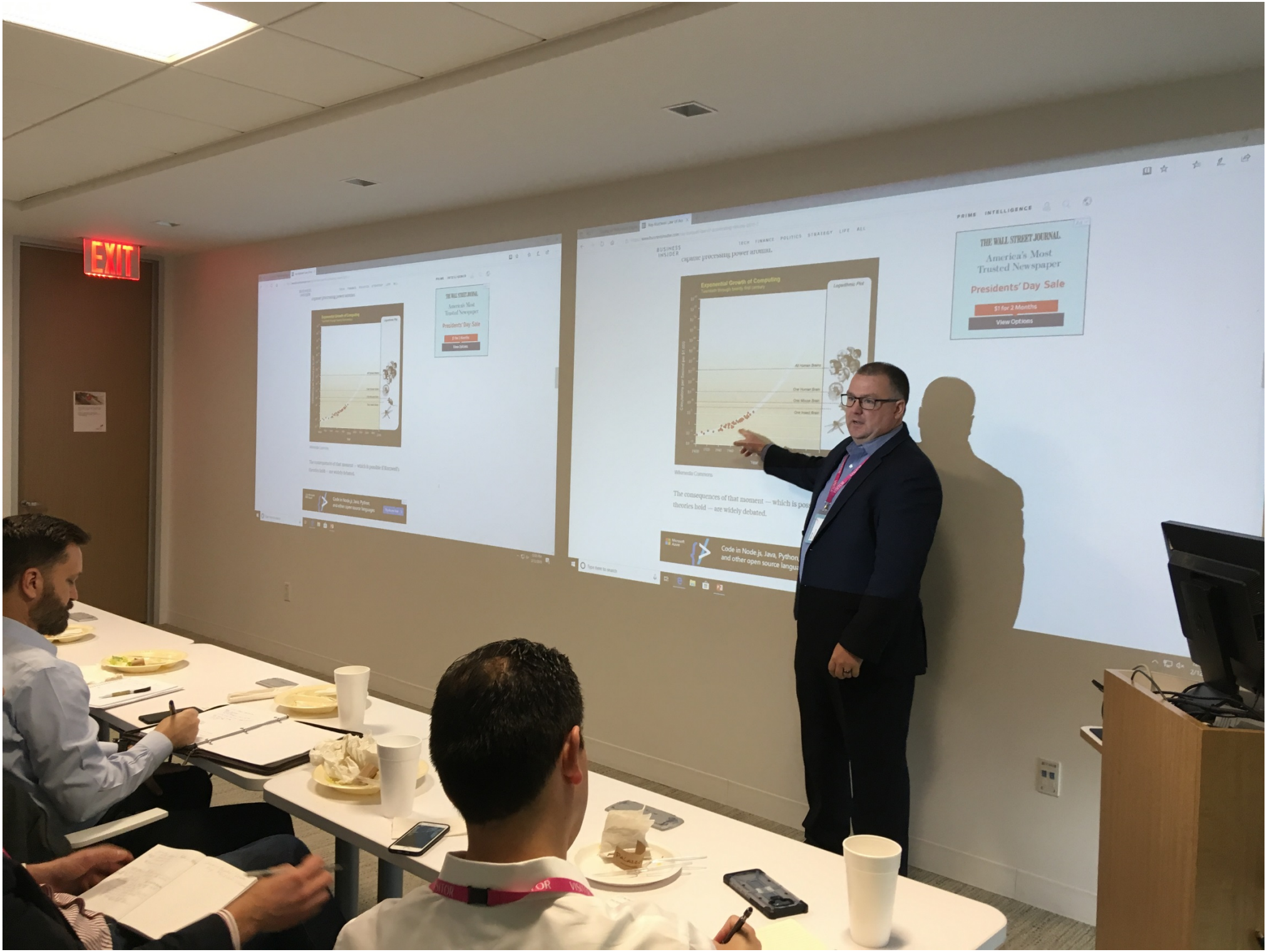
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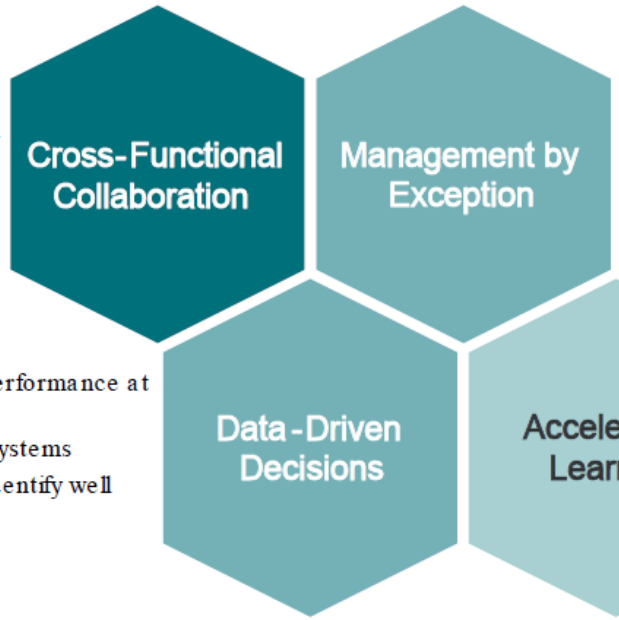
Purpose of Integrated Remote Operations Center (IROC)

- One team looking at the same data, the same way
- Elevate complex issues quickly to SME
- Capture &share best practices across assets

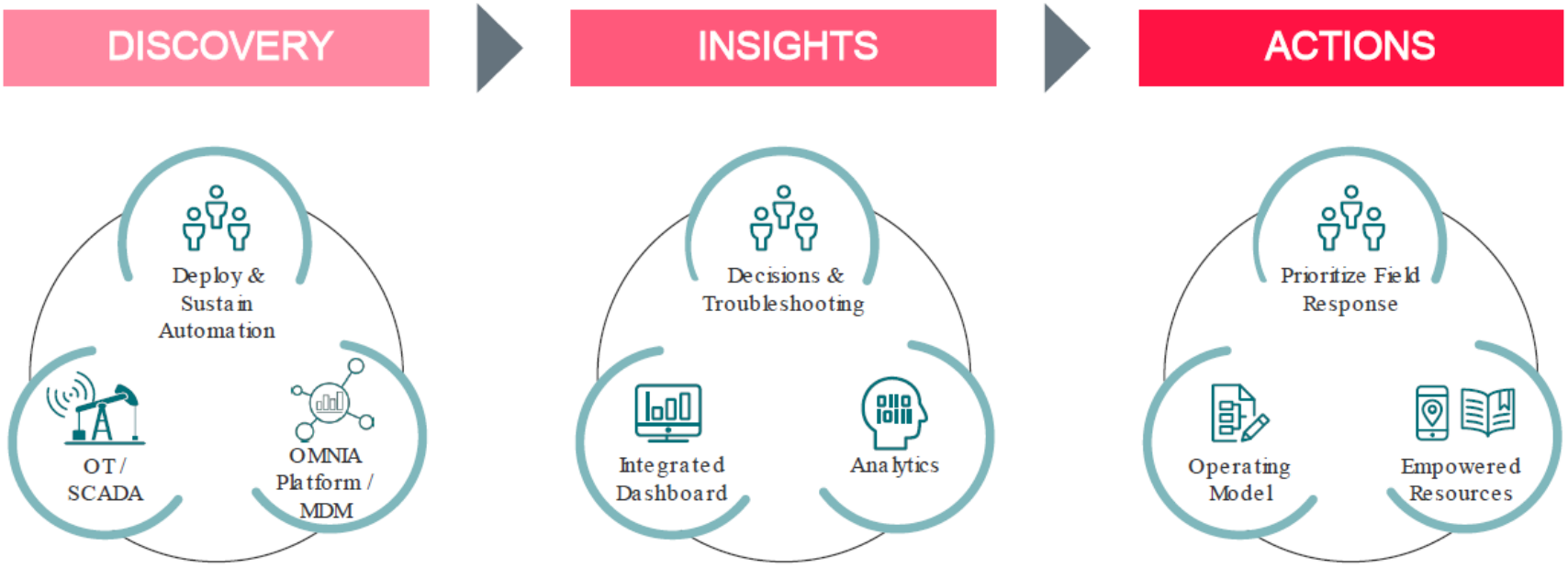


- Real-time surveillance &prioritization of field activities
- Ensure the right people are taking the right action at the right time
- Reduce unnecessary driving risk

- Automated insights into real-time performance at the well, pad, &field level
- Consolidated data across multiple systems
- Advanced analytics to proactively identify well issues

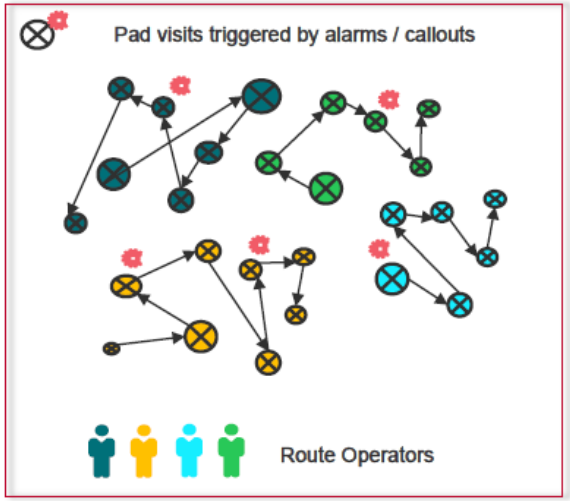
- Dynamic view of production performance &key KPI
- Structured process to capture &share best practices across assets
- Leverage machine learning and predictive analytics to optimize well performance

Changing how decisions are made

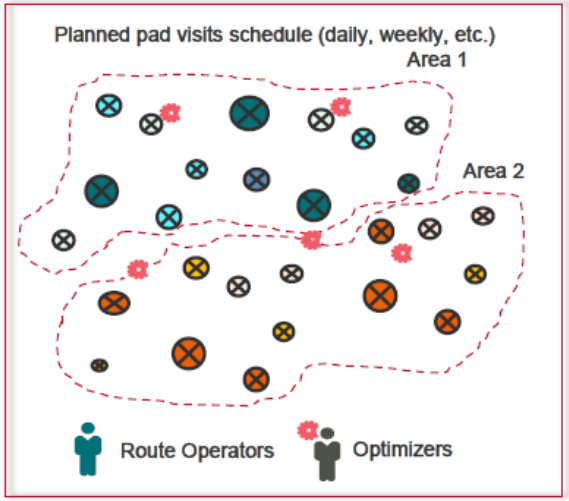


Management by Exception (MBE)

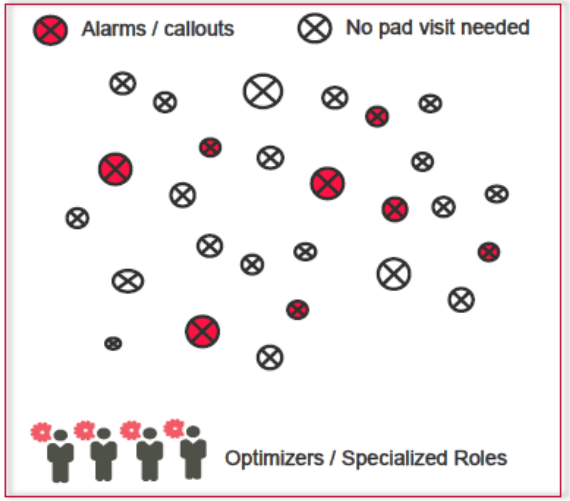
Optimized current routes



Pad visit schedules based on pad risk tiers



Specialists respond to exceptions



MBE maturity is enabled by strong Operations Technology infrastructure (I&E, SCADA, etc.)

Daily visit to every pad — **MBE Maturity Levels** — Exception Dispatch only

New Ways of Working

Jarle Husebø, Leader Digital Business Solutions

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