2020 AFPM
SUMMIT
Excellence in Plant Performance

DIGITAL TRANSFORMATION

JULY 22, 2020

2-3 PM EST

WHAT IS THE AFPM SUMMIT WEBINAR SERIES?

- AFPM has been conducting various webinars for years, mostly on safety related topics

- As we embark in developing The Summit, Excellence in Plant Performance, there will be more opportunity for member engagement

- Upcoming Webinars
  - **September** – FCC, Continuing Q&A from Summit Session
  - **October** - Crude Feedstock: Oilfield Implications on the Refining Processes

- Previous Webinars Available on the AFPM Summit Website
  - **February** - Safeguarding the FCCU during Transient Operations
  - **March** - Shutdown Best Practices for Reactor Systems
  - **April** - Reboiler Circuits For Trayed Columns
  - **May** – Learning Teams
  - **June** – Highlights of the Proposed Changes to API RP 751 Rev 5

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WEBINARS ARE INTERACTIVE

- Ask questions, they will be answered at the end

- Use the polling software

- Webinar is being recorded and will be available for review online later

- Survey questions at the end of the webinar.
    - First in the Digital Transformation Series – we need your feedback on what we should address next!

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Digital Transformation:

STRATEGY FOR ACHIEVING <u>LONG-TERM</u> <u>SUSTAINABLE</u> OPERATIONAL EXCELLENCE

Bruce Taylor
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Background

Perspective:

Summary view of 5+ Decades of Personal IT/OT 'Transformational' Experience

DISCLAIMER:

All views expressed during this presentation are my own and do not represent the opinions or activities past or present of any entity with which I have been, am now, or potentially may be affiliated.

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Intent

Objectives:

- Offer a baseline perspective of 'Digital Transformation' to stimulate thought and discussion towards ensuring the most desired implementation outcomes; and
- Set stage for a more detailed exchanges schedules for the virtual AFPM Summit.

Non-Objective:

- Prescribe an answer… Every business and every site is unique with equally unique wants and needs.
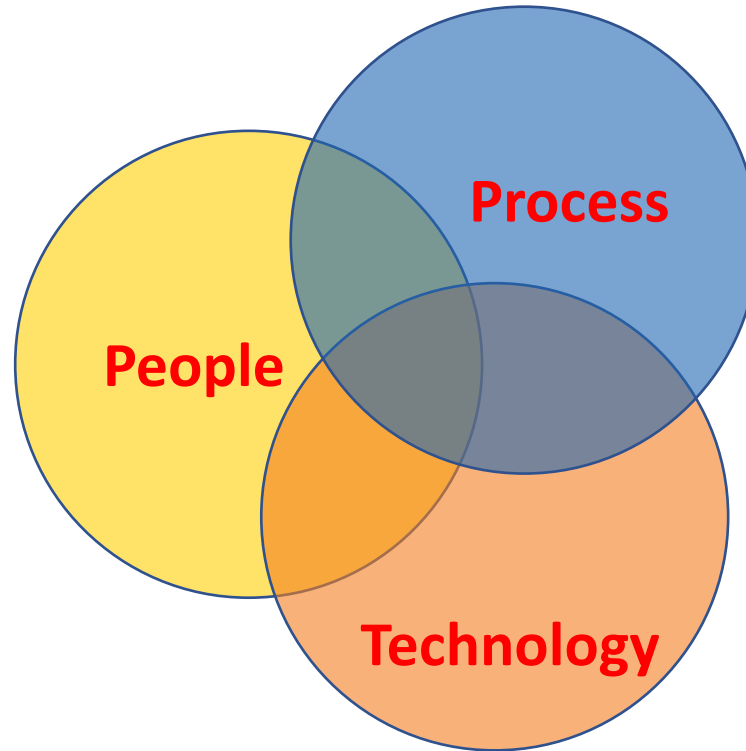
Key Assumptions:

- Having a Vision/Mission/Charter and other supporting key project elements is a given.

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Approach to Discussion

Digital Transformation:

- History
- Technology Factors
- People Factors
- Process Factors

Summary

Process

People

Technology

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Interactive Polling Questions (1-2)

- To access the poll, use your phone to scan the QR code or visit the link and type in the meeting code

- Live results will be displayed in the presentation

- Note: responses are anonymous

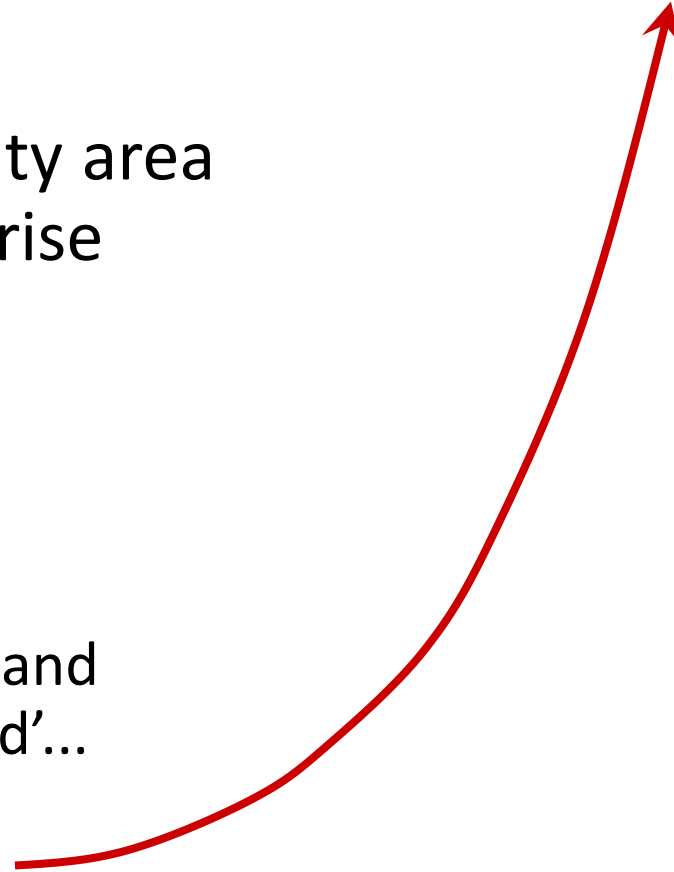Join at
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History

- How we got here:
  - **Digitization** (of Information):
    Digitization is defined as the 'technical process' of "converting analog information into digital form"
  - **Digitalization** (of Industries and Organizations):
    Digitalization is the 'organizational process' or 'business process' of the technologically-induced change within industries, organizations, and markets
  - **Digital Transformation**:
    Transformation of existing business models, consumption patterns, socio-economic structures, legal and policy measures, organizational patterns, cultural barriers, etc.

History

- How you got to where you are:
  - Based upon ever evolving Information Technologies:
    - Digital Transformation started with Digitization
    - Digitalization leverages capabilities to optimize business and work processes and practices to maximize levels of efficiency and effectiveness towards achieving Operational Excellence:
      - Safety
      - Environmental
      - Financial Performance
      - Shareholder Value
      - Brand Equity
      - Others
  - But, while an evolutionary step:
    - 'Digital' in Digital Transformation should not connote that this is an IT/OT driven initiative

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Technology Factor

- Technology <u>is</u> the Essential Enabler

- Transformation is the next opportunity area for further increases levels of enterprise performance

- But, still with the same challenge
  - Being and Staying Top Quartile (or Desired Quartile) of Performance
 - When living in and working to succeed and sustain success in an 'Exponential World'…

Technology Factor

Technology Evolution _Not_ a Linear process -

- Moore's Law - Chip density doubles every 18 months
- Metcalf's Law - Computing power increases by the square of the number of nodes
- The Internet compounds Moore's Law for a net compute power increase of 2^{3n}

Quantum Computing

Technical Architectures and Cultures Must Readily Adopt to Change

AI/Deep Learning

Analytics

VR/AR

PaaS

Cloud

Saas

Next Steps Need to be Defined and Started Before the Previous are Completed, Always Reevaluating the End Point

Mobility

IoT

Big Data

Leaders Stay on the Face of the Wave

EPR

Internet

APC

Small Incremental Steps Solving _Today's_ Problems Will No Longer Work

MRP/MRP II

PLC/DCS

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Technology Factor

ARCHITECTURES RULE

- Standards Based Architectures
  - Infrastructure
  - Application
  - Data
- More Critical than Ever Before
- Governing Principles
  for All that Comes Next
- Defines the Speed and
  Ease of Transformation as an
 On-Going Effort
- Defines an 'Orchestration'
  Strategy
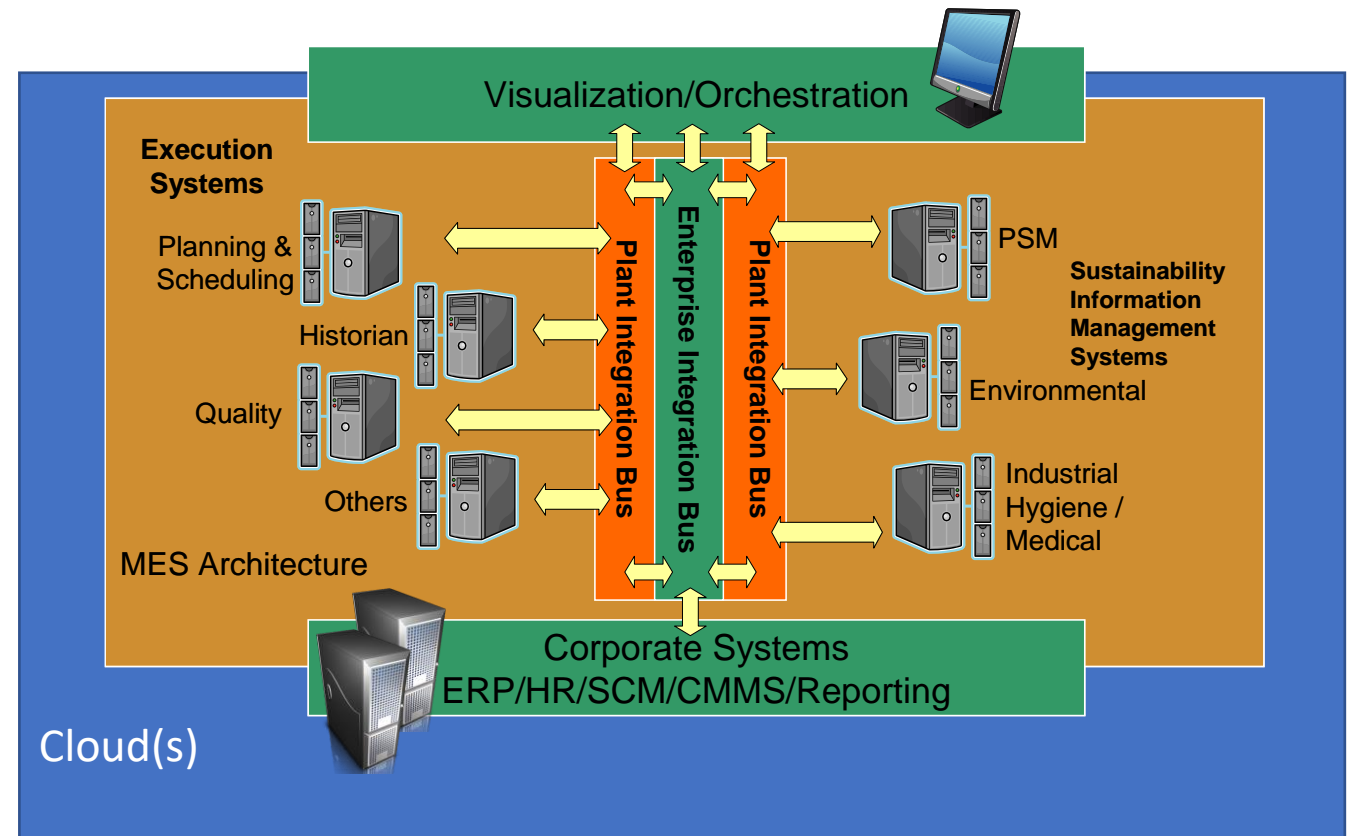
Key Tech Factor

- Digital Transformation
  - Whether viewed as really something new or a marketing term, we are in a technology fueled ultra-marathon without a known finish line:
  - Accepting that it is just the next sprint:
    - Where are you on the course?
    - Where are you in the pack?
    - What are your strengths and vulnerabilities?
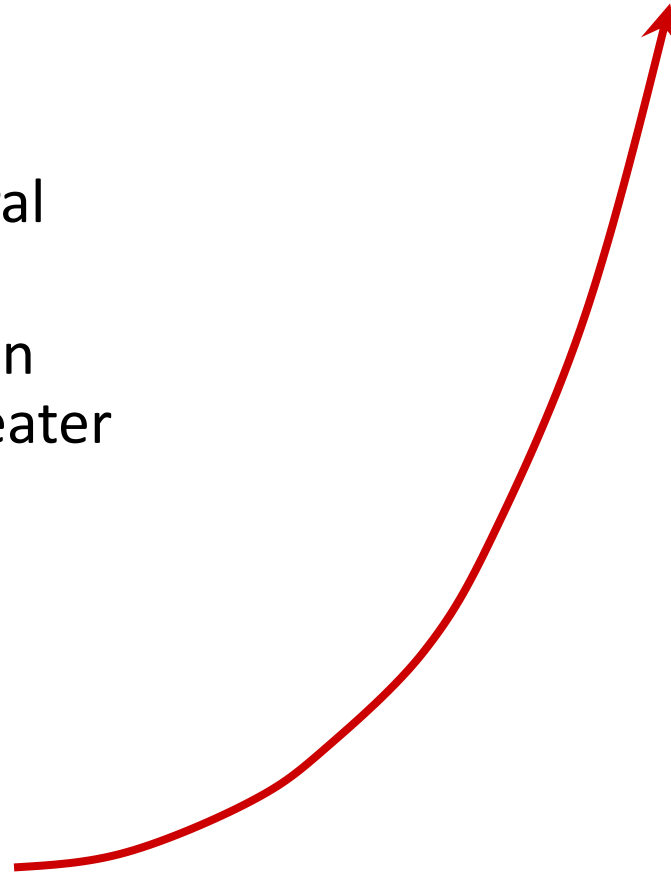 - Interoperability is of equal value as functional capabilities

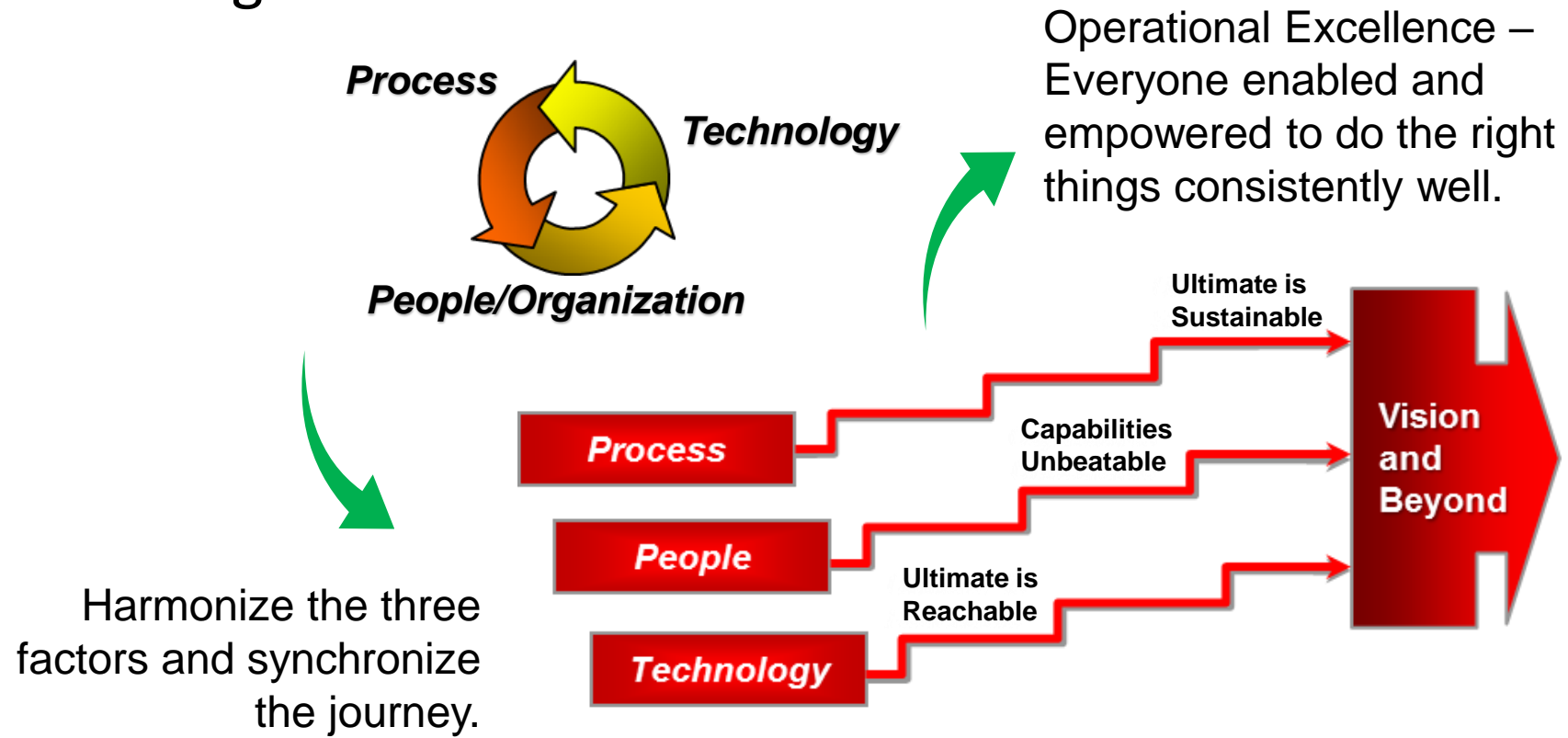Commitment without understanding is a liability.

- Oliver Wight

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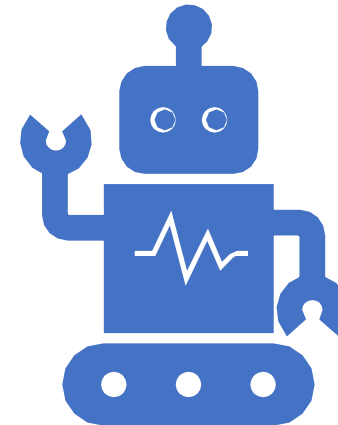
Cultural Factor

- Human Asset Performance Management (HAPM)
    - Digital Transformation is Cultural Transformation
    - 'Transformative Culture' with an appetite for transformation greater than what can be delivered

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Cultural Factor
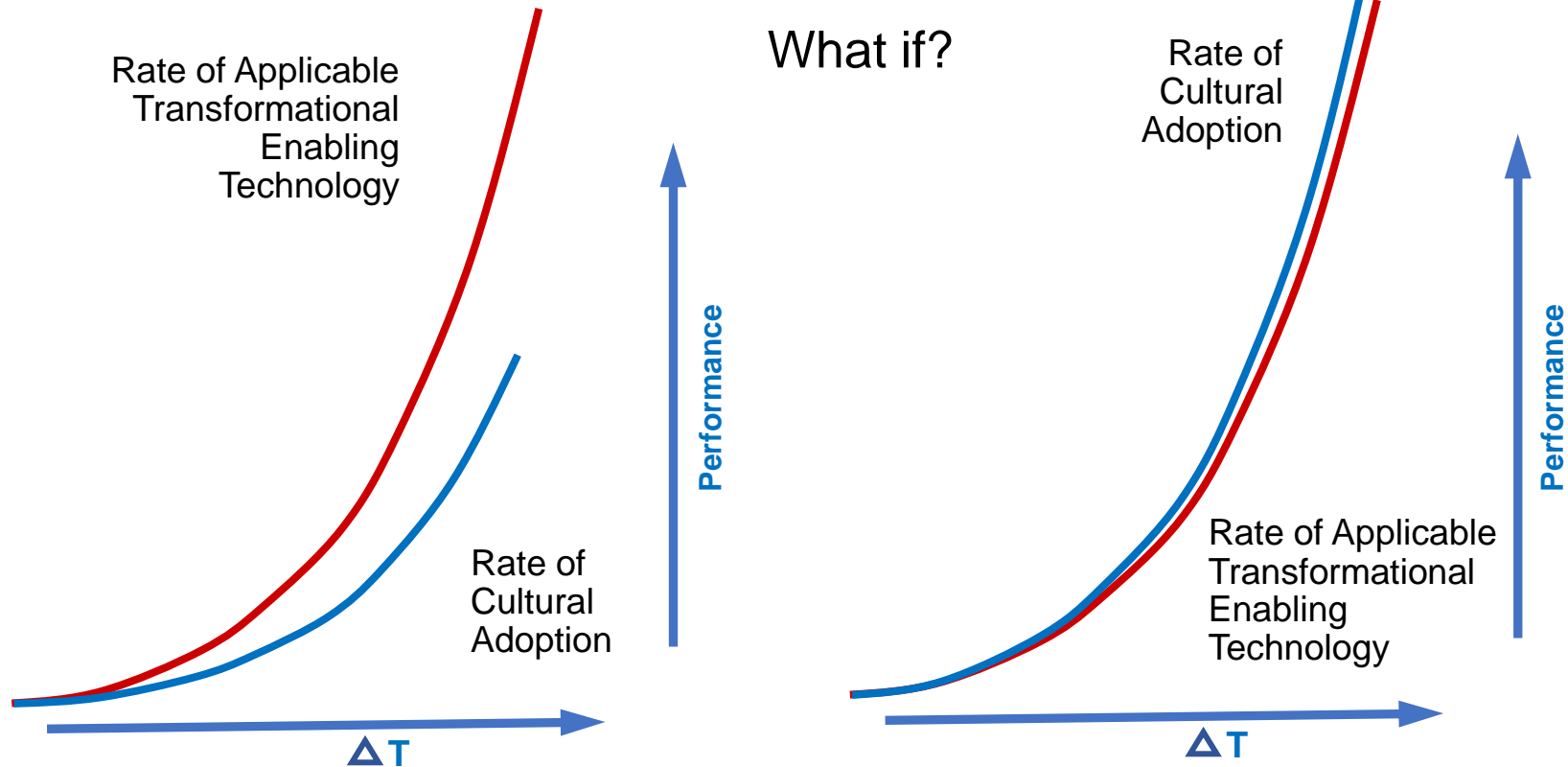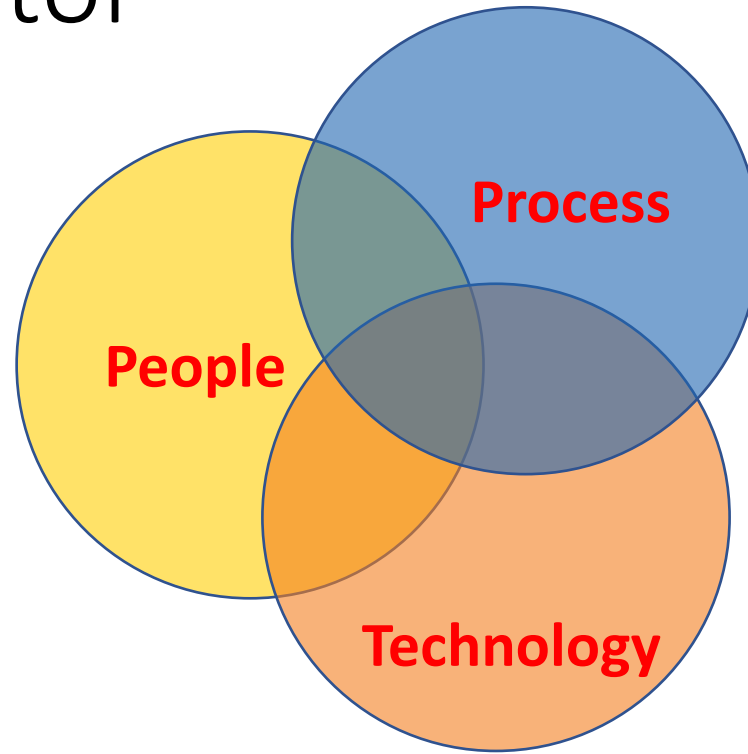
- Inherent Challenge

Cultural Factor

- Cultural Transformation Opportunity

Cultural Factor

- Parity?
  - Focus
  - Resourcing
    - Programs
    - $$$
    - Time
    - Manpower
- If No, Why?
- If Yes, How?

Remembering: *Transformation* of <u>existing business models</u>, <u>consumption patterns</u>, <u>socio-economic structures</u>, <u>legal and policy measures</u>, <u>organizational patterns</u>, <u>cultural barriers</u>, <u>etc</u>.

So, dealing with the cultures of all your communities

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Cultural Factor

- Transformation Value Driver:
  - Efficiency and Effectiveness; or
  - Innovation?

- Cultural Objectives of Transformation:
  - Engage?
  - Develop?
  - Evolve?

- Impacts of Transformation:
  - Overload or Load Reduction?
  - Depress or Stimulate?
  - Resistance or Acceptance?
  - Frustration or Delight?

Key Culture Factor

- Digital Transformation
  - Is more about transforming interaction between communities than about technology
  - The cultures of all involved communities need recognition as the key business transformation enabler
  - Accepting that change is constant:
    - What cultural transformation opportunities exist?
    - How can a culture that embraces and truly values transformation (change) be established?
  - Embrace methodology utilized by software/application development

"Company cultures are like country cultures. Never try to change one. Try, instead, to work with what you've got."

- Peter Drucker
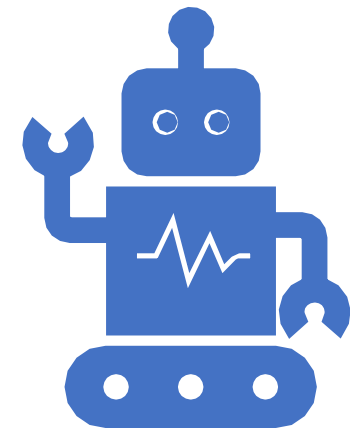
Process Factor

- Business Process Innovation
  - The Heart and Soul of Digital Transformation
  - Using What You Have, Adding a Little New, and Building Something Great
 - As an industry O&G lagging

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Process Factors

Transformational Enablers/Game Changers:

- www / The Internet
  - Eliminated Business Constraints of <u>Time</u> and <u>Distance</u>
  - Acknowledged Business Differentiator during Pandemic
- AI/Analytics
  - Eliminates Additional Constraints of <u>Scope</u> and <u>Scale</u>

Everyone is Somewhere:

- What are the Untapped Transformational Opportunities?
- "The greatest danger in times of turbulence is not the turbulence; it is to act with yesterday's logic." Peter Drucker
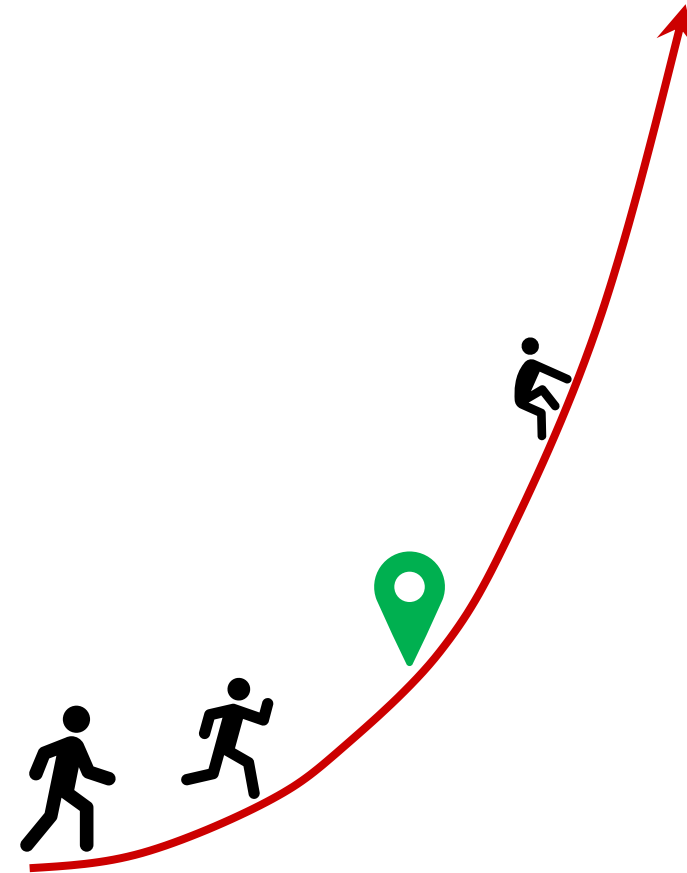
Process Factors

Fundamentally Changing Existing Norms

- C Level Sponsorship and Engagement Mandatory
- Dedicated Commitments (Organization, Resources, etc.)
- Cross Functional
- Identify Business Needs and Opportunities (In Your Terms)
- Greater Than or Equal Attention to Culture(s)
- Governing Principles

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Key Process Factor

- Digital Transformation = Transformational Thinking
  - Beyond 'Business Process Improvement' or searching for incremental efficiency and effectiveness opportunities.
- Accepting that wherever you are is good:
  - Leverage What You Have and Where You Are to be Better by Assembling in New Ways
  - Spend for the Future
  - Think Holistically
  - Thinking/Acting Differently About Technology
- Enterprise Imperative

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Summary

- Technology
  - Verify and understand existing technical ecosystem/architectures
  - Address foundational needs
- People/Culture
  - Cultural Transformation is inherent outcome of Digital Transformation
  - It is not just about the culture of a functional area, group, or site
- Process
  - Top Level Commitment
  - Look Beyond the Classic Metrics

Only three things happen naturally in organizations: friction, confusion, and under performance. Everything else requires leadership. - Peter Drucker

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QUESTIONS?

SURVEY QUESTIONS (1-2)

- Please complete the Slido survey questions

- This will help us deliver relevant in the Digital Transformation Series

- Let us know if you have a story you'd like to share!

- Note: responses are anonymous

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DIGITAL TRANSFORMATION SERIES CONTINUES AT THE SUMMIT!

- Refining Case Studies on Leveraging Data Analysis and Reporting Tools for Decision Making
  - Tuesday, 8/25 11:30am EST
  - FACILITATOR: Abbas Dhalla, *Chevron Corporation USA*
  - SPEAKERS: Miguel F. G. Sison, *Chevron Corporation USA, and* Dan Oliveira, *Flint Hills Resources*
  - Learning objective: Leverage domain knowledge to help develop and create "easy-to-use" applications without requiring software coding/programming knowledge from existing data. Demonstration of Power BI tools will be provided.

- Connected Worker
  - Tuesday, 8/25 4:30pm EST
  - FACILITATOR: Rebecca Bourg, *PBF Energy*
  - PANELISTS: Ben Way, *Phillips 66 and* Jordan Oligmueller, *AdvanSix*
  - Learning objective: Panel discussion on different operating companies' approach to implementing a connected worker program. Rounds and LOTO applications will be highlighted.

- Digital Transformation: Case Studies on Developing Programs at Your Companies
  - Thursday, 8/27 12:45pm EST
  - FACILITATOR: Peter Reynolds, *ARC Advisory Group*
  - SPEAKERS: Douglas White, *Emerson Automation Solutions,* Todd Dixon, *Marathon Petroleum Corporation* and Bruce Taylor, *Sinclair Oil Corporation*
  - Learning objective: Case studies will be provided from an operating company and solution provider perspectives on how to develop and execute a digital transformation program at your company. Presentation and panel discussion.
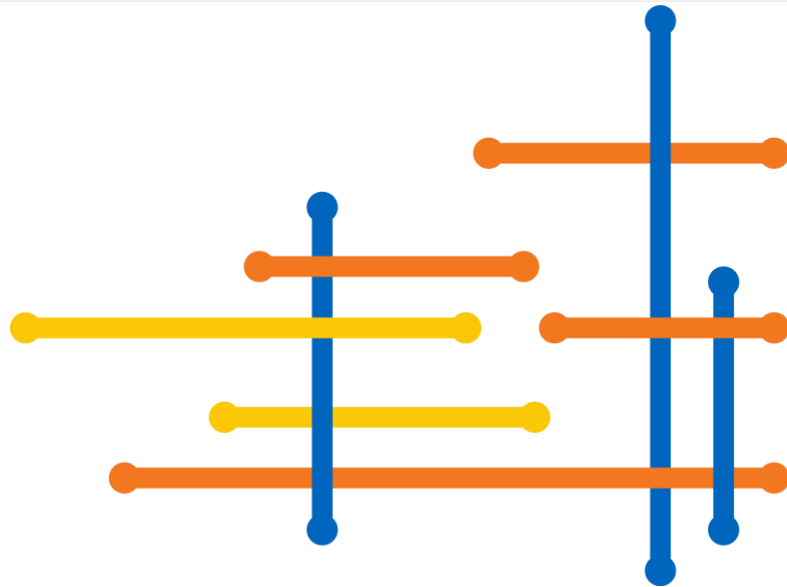
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SUMMIT TOPICS

August 25 – Day 1

**Leverage Emerging Technology for
Improved Plant Performance and Efficiency**

- Wireless Handheld Devices

- Public Policy Driving Technology

- Leveraging Technology for Knowledge Management

- Return on Investment with Refining and Petrochemical Data

Topics with Industry Wide Implications

- Fostering Profitability - Panel Discussion

- Turnaround Planning and Execution - Roundtable

- Utilizing Refinery Data – Solutions via Case Studies

- Emerging Leaders

- Future of Refining

- New Ideas for Turnaround Safety - Roundtable

- Human Organizational Performance (HOP)

- Contractor Onboarding for Turnarounds

- Workforce Development and Retention

August 26 and 27 – Day 2 and 3

Crude, Coking

- Town Hall featuring HSFO processing, Crude Compatibility, T/A and Reliability

- Monitoring and Improving Equipment Operations

- Coking and Crude Troubleshooting and Lessons Learned

- Unit Optimization

- FAQs – dive into hold-over topics from prior days

Gasoline Processing

- Lessons Learned PES Incident

- HF Alkylation Risk Management

- Town Hall featuring:
    - Corrosion in Alky Units (Poll)
    - Light Naphtha Balance Issues
    - Issues with Higher Utilization of Reformers (with higher octane demand)
    - Current Challenges with Gasoline Blending
    - Chloride Management Issues around Reformer/Isom
    - Unique challenges around Preparation for TA of Gasoline Units with recent regulation updates

- Benzene in Gasoline

- Reformer Reliability Issues

- Molecular Management around Gasoline Units

- Increased Octane Demand – Investment Strategy for the Future

- FAQs – dive into hold-over topics from prior days

SUMMIT TOPICS CONTINUED

Hydroprocessing

- Emptying Your Reactor – A Primer

- Effective Catalyst Selection Strategies

- Regulatory Compliance: Perception vs Reality

- Turnaround Scope Development for Dummies

- The How and Why of Hydroprocessing Safety Systems

- Driving Hydrocracker Profitability without Capital Investment

- FAQs – dive into hold-over topics from prior days

FCC

- Key Equipment Fundamentals and Maintenance

- Spent Catalyst Unloading Equipment Reliability

- Optimization at Reduced Rates

- Pressure Balance Fundamentals

- Refinery of the Future – Case study with Gulf Coast Economics

- Refractory Reliability
  Failure Mechanisms, New Technology and Best Practices

Technical Breakouts

- Integrating Operating Windows and Corrosions Control Documents
  Roundtable and Case Study on Integrity

- Flange Assemble Breakout

- Drones for Inspection Strategies

- Corrosion Control Case Studies, Inspection and Technology

- Risk Based Inspection

- Reliability Roundtable

- How to get the most Tool Time

- Asset Strategy Optimization

- Turnaround Scope

- Rope Access Repairs Roundtable

- Tank Maintenance and Cleaning

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THANK YOU FOR YOUR PARTICIPATION