Session Highlights

OIL & GAS DIGITAL TWIN
Conference & Exhibition

Year 2021, 2022

Information Model and Digital Twin - Creating Value from Data

- Introduction - What is Digital Twin?
- Plant life cycle and use of digital twin
- Digital twin Information Model
- Key Enabling Technologies/drivers
- Digital Twin Maturity
- Improved value & Insight using Digital twin
- Implementation Challenges

Vinayak Kharche
Head Of Information Systems And Automation At Mundra Petrochem

The Digital Asset – The Foundation for "Analytics", Digital Transformation, OpEx, and Decarbonization

- Relationship to the digital twin and discuss the importance of and best practices in accelerating the journey through data, information and intelligence and the role of the digital asset and digital twin
- The digital asset will be positioned as the nexus for delivering business and social value from "analytics", digital transformation, operational excellence, and decarbonization strategies and programs

Craig Harclerode
Global O&G and HPI Business Development Executive

Real Time Completion Surveys and Analysis

- Near Real time unsupervised learning to detect the formation parameters.
- Flagging abnormal events interactively
- Operation detection

Atheer Alattar
Lead Data Scientist

Overcoming Complexities of Deploying Additional Advanced AI/ML Analytics

- IoT Edge virtualization: combining VMs & Containers
- 5G implications on latency, throughput, and cost of deployment
- Cost effective centralization of the Data Lake and Compute: Use of Cloud services
- Making the environment resilient: clustered edge, cloud disaster recovery

Russ Sagert
Director Business Development: Energy, Manufacturing, Natural Resources, Retail

Leveraging New Age Digitalization Solutions in Oil&Gas, Refining and Petrochemical Industries to Achieve Sustainable Manufacturing

- Sustainable practices in Oil&Gas, Refining and petrochemical industries is gaining immense importance and these practices can be seamless integrated into business operations and improved through the application of digital solutions.
- Effective use of digital solutions utilizes digital technologies to convert data to Augmented Intelligence that enables closer to real-time access to decision quality information facilitating improvements in existing manufacturing units for greater sustainability
- Digital Twin and predictive models using Advanced Analytics enable better identification of energy savings opportunities and productivity improvements, both of which impact the carbon footprint and hence sustainability and allow more innovative design changes.
- Ingenero's Sustainability Program, I-SSPDE, integrates edge computing with advanced analytics utilizing the full potential of Industrial Internet of Things (IIoT). By combining latest smart technologies and tools, I-SSPDE acts as a force multiplier and allows manufacturers in the Oil & Gas, Midstream, Refining, Petrochemicals industry, to advance their energy management, safety modeling and automation processes.

Ranjit Panchal
Director - Marketing

Beartooth: Applying Digital Twin to Advanced Nuclear Fuel Cycles

- The use of models-based systems engineering as part of digital engineering to ensure system design success and incorporation of digital elements
- Use of XR technologies in design
- Envisioned use of real-time data for experimentation and operations

Kaleb Houck
Digital Twin Research Scientist

Oil & Gas Retail sites – Digital Transformation

- Retail Innovation – what does it really entails
- Retail sites as a hub of services
- Digital transformation at a Retail site

Stelios Panaretos PIT RETAIL MANAGER

Digital Twin, extended Realities and Metaverse

- Understanding Digital Twin embedded on Extended Realities Devices and their benefits
- Metaverse and a glance of the future

Vitor Do Valle
Head of Centre of Excellence in UX and Digital Technology

Sustainable Digital Twinning: Why is it Time to think now, for the Future

- Integrating New with Old
- Technological Debt
- Plan for Obsolescence

Pankaj Srivastava
Joint General Manager - IT

Production Process Digital Twins – Real Value Mandates Modelling Rigour

- How production depends on phase separation
- Simulation-based digital twins with and without rigorous modelling
- Review of progress and potential future developments

Tom Ralston
Digital Process Engineering Business Development

Real-time, Model Based Digital Twin for Energy and Emissions Management

- Process plants need to consider how the available energy vectors, either traditional or renewables sources, can be produced, distributed, mixed and used by integrating them within or reformulating existing energy systems. The objective is to reduce both costs, and GHGs emissions. Selecting which energy source should be used at any given time depends on having data related to all the possible options. Data values could fluctuate in time, depending on power price, weather conditions, renewable sources availability, etc.
- For large-scale O&G plants, energy normally accounts for 50% of operating expenses. Consequently, reducing energy use by 10% can often improve margins by 5%. As companies seek to maintain profits and reduce emissions, energy optimization is one of the first places to look.
- In a renewable dominated scenario, due to the variability of the climate factors impacting the power generation, energy storage mechanisms should be available to capture the surplus and be used as a backup when renewable generation is expected to decline. A decision is to be taken, in real-time, about when to fill or deplete the storage and when to activate internal power production. A great challenge for the person or group in charge of optimally managing the energy system is the change in traditional mind set and optimization objectives. This kind of analysis cannot be done manually to the extent and with the necessary speed for a large and complex facility, especially when renewables are involved. Using a real-time, model based, Digital Twin approach, can consider both the sources and uses of energy, making it possible to optimize selections well beyond conventional energy and emissions reduction efforts.

Carlos Ruiz
Product Manager, Energy Management Visual MESA

How to Achieve Efficiency in asset lifecycle development and operations by digital twin

- The shocks of COVID-19 combined with growing momentum to transition to a low carbon future, accelerates the need for Oil & Gas companies to 'supercharge' their digital agendas.
- The need to build new and modify existing plants into efficient, connected and sustainable facilities of the future is moving at a faster pace than ever before. In the push to net zero, it is imperative to design, build and operate plants more efficiently and cost-effectively is the new norm.
- There is a direct correlation between efficiency and sustainability.
- Digital solutions are a key enabler to achieve both and deliver the plant of the future

Wassim Ghadban
Vice President, Global Innovation & Digital Engineering

Optimization of Facilities using Auto-Calibrated Hybrid-Based Digital Twins

- A physics-based simulation tool with built in AI allows building digital twins to empower users to model and optimize energy processing facilities
- New techniques to auto-calibrate this process models will save a lot of time and make these digital twins autonomous

Saad Kisra
Global Head of Process Simulation

AI-Based Intelligent Data Loss Incident Response Plan

- AI-Based Intelligent Data Loss Incident Response is a solution to provide automated response to Data Loss incidents by collecting, correlating and analyzing large amounts of security incidents data from across diverse sources, including all data exfiltration channels, corporate asset data, and alerts from other security systems
- It's based on highly advanced big data analytics platform empowered with Artificial Intelligence & Machine Learning security analytics models to transform Data Loss Prevention (DLP) from traditional data centric monitoring to intelligent and proactive monitoring

Rafiq Khurshid
IT Specialist

Industrial Cybersecurity – A Catalyst for Digital Transformation

- Security – a building block to enable Digital Transformation
- Risk based approach to focus investment
- Security framework implementation
- Sustainable solutions to adapt to emerging trends
- Security data enrichment & Digital Transformation for predictive maintenance
- Leveraging Digital Twins, AI & ML for cybersecurity

Arthi Vasudevan
Senior Product Manager, Cybersecurity - Nexus Controls

Brownfield Digital Twins - A crash course

- Combine existing OT/IT/ET/visual data to build a value-generating, extendable, and open digital twin of any legacy assets
- Hands-on demo of secure data integration, contextualization, and operations (DataOps) best-practices for brownfields
- Examples of hard ROI digital twin use cases such as production optimization

Petteri Vainikkka
Vice President of Product Marketing

Condition Based Maintenance: Technological Solutions for Effective Implementation

- Current challenges facing the effective implementation of CBM
- Combination of technologies as a Solution towards Effective implementation
- Leveraging data and technology for predictive analysis

Tihomir Kezic
Operational Excellence Director, Global Process Owner for new Collaborative Platform

Digital Twins for Smart Buildings to Unlock your Business Potential Based on Real Customer Projects, not just Theory

- Why use digital twins for smart buildings?
- How to connect BIM & IoT to a digital twin?
- What benefits you get in the operation phase?
- Takeaways

Kevin Bauer
Global Business Development Manager BIM & Digital Twin

Digitizing Energy Infrastructure Construction: Collect it Once, Collect it Well, Use it Everywhere

- What are the benefits of digitizing energy infrastructure construction?
- Why is it important to take advantage of digital data captured during construction for the creation of a digital
- twin?
- What does digitizing energy infrastructure construction look like?
- Where do I start to move my organization forward?
- What predictions are possible now?

Brett Vogt
Director at Project Consulting Services

Operational Improvements using Digital Twin

- Breakdown of the 3 Digital Twin Streams and how WSP approaches them
- How visual digital twins are used for operations training

Jean-Frederick Duquette
Lead Simulation and Virtualization - SMART Solutions

Employing Combined Subsurface and Facility Digital Twins to Optimize Production and Reduce Carbon Footprint of Oil and Gas Assets

- Practical digital twins that span reservoir and facility models and data to maximize asset performance
- Exploit existing data and employ hybrid models to integrate AI into predictive power of the digital twin
- Identify opportunities for carbon emission reduction in producing assets
- Case studies

Gerardo Muñoz
Product Marketing Manager

Process Expertise and Digital Technology at the service of our Customers: a Real-Time Digital Twin for Snamprogetti Urea Performance Service

- Digital Technology allows process licensors to propose Innovative customer engagement models offering flexibility and a personalized experience, opening up new revenue, cost saving and reliability enhancing opportunities for plant operators. Saipem, in partnership with Honeywell, now offer a new service based on a digital twin solution for plant performance optimization, mixing the most advanced digital technology provided by Honeywell with Saipem's Urea Process expertise.
- The Digital Twin for SnamprogettiTM Urea Performance Service focuses on process performance optimization, improvement of productivity and energy efficiency, reduction of carbon emissions. The solution will allow customers to gain insights on deviation from optimal performance, to identify opportunities and issues rapidly, to access alerts and actionable recommendations both through digital solution and/or Saipem expert guidance.
- The Digital Twin Solution consists of a SaaS Offering, based on Honeywell FORGE technology and SnamprogettiTM Urea process models, and Saipem expert support services to customer plant operators.

Giuseppe Trefiletti
Technology Innovation
At Saipem

Disrupting Physical Assets into Smart Digital Entities

- How we reduce employee operational costs by endowing physical assets the capability to interact with them bi-directally
- Centralize all the services related to an asset, from the asset itself. Interconnect existing systems such as ERP's, AR's, active IoT, etc. and make them available from the asset itself
- We make it happen in 2 simple steps and 1 easy action, with no need to change any existing infrastructure
- Simply Connect

Jordi Breda
Founder & CEO

Leveraging Physics simulation based digital twins for predictive maintenance and operational optimization

- Connecting high fidelity 3-D Simulations (CFD/FEA) with 0-D/1-D systems to create a holistic Digital twin
- Helping in real-time remediation for operational optimization, quality maintenance via virtual sensors
- Easy deployment on IOT platforms or within existing Workflows to provide greater insights into failure modes

Jordi Breda
Founder & CEO

Real-time Hydrocarbon Blending Optimization Using Virtual Analyzers

- Midstream crude oil facilities often lack information on their product quality, which leads to either overly
- conservative/unoptimized or risky blending programs
- One way companies can address this is with digital twin type solutions that can accurately predict unknown
- product quality properties and automatically optimize operations in real-time. Using probabilistic approach
- to optimization allows companies to:

- Quantify the measurement uncertainty and its sources
- Optimize safety margins

- Provide a justifiable measurement program
- Once midstream companies implement these digital twin controls, they can increase blending terminal profits by blending closer to the targets while reducing the shut-in risk by carefully accounting for measurement uncertainty.

Jordi Breda
Founder & CEO

Spatial Immersive Visualization & Data Intelligence: Intuitive Context in Asset Integrity Management

- Challenges in modern asset integrity management
- What is SIV-DITM (Spatial Immersive Visualization & Data Intelligence)
- Application of Augmented Reality (AR) / Artificial Intelligence (AI) in asset integrity management
- Intelligent and automated defect detection and analysis using AI-assisted computer vision

Nima Parsi
VP Asset Integrity Management At Enerkeen

Connecting the full spectrum of air and gas handling equipment to their digital twins

- How to leverage over 160 years of original equipment manufacturing expertise to build highly differentiated digital twins
- Identify the various different technologies being used to capture, transmit, store, visualise and analyse data
- Explore future trends and predictions in maximising the usability and scalability of digital twin solutions

Billy Milligan
Solutions Development Lead At Howden

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Join us OCT 10-11, 2023, for **OIL & GAS DIGITAL TWIN CONFERENCE .** An exclusive face to face event consisting of top-level content and thought leadership discussions exploring the digital transformation ecosystem.

Reserve your seats: digital-twin-conference.com/delegate_packages/