Solving Energy Sector Challenges with Digital Thread

White Paper

The energy sector, must manage and overcome significant business challenges. We are aware of the importance that companies in this sector place on digital automation strategies and we have been in contact with multiple customers to better understand the business pains across the energy sector value chain.

This paper will identify the challenges and questions companies involved in the upstream, midstream or downstream block are subject to. The purpose of this white paper is to share and highlight mitigation strategies for these key pains.

Together with our partner, PTC, we believe that "Digital Transforms Physical". This transformation is often dictated for reasons of operational efficiency, innovation and sustainability; therefore, we will frame our paper around these aspects related to the challenges of the energy sector.
We will lay out the questions we believe will help you rapidly assess how much value you can derive from deploying the digital thread across your company and how this can accelerate and underpin your successful journey.

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The Burden of Data Management

A common feature among managers of complex energy facilities is the huge amount of data the stakeholders and especially the facility operator must deal with. Taking the nuclear sector as a reference, at the end of a nuclear power plant's design phase, the sets of data can reach: 25,000 documents, 35,000 requirements, 100,000 basic components and 1,500,000 basic technical data records. During the construction and commissioning phases, these figures are multiplied by 10 as stated in this report written by Assystem. This report makes the case that the use of digital tools to manage these data is now mandatory. In the Oil&Gas sector, refinery managers are constantly preparing for the next turnround by gathering all necessary data (equipment reliability, etc.) on the facility that come from a host of sources (technicians, data files, X-ray scans etc.).
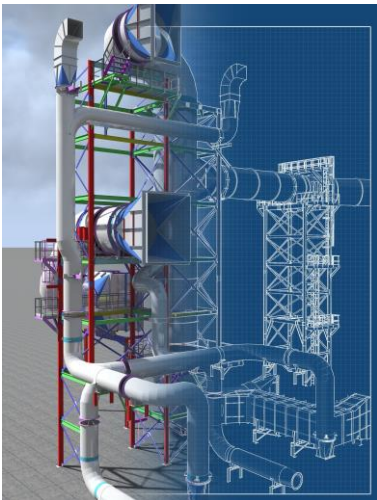
How is my organization is managing engineering, operations and maintenance data ?

Is my organization capable of analyzing circulating data and leverage the resulting insights ?

Collaboration & Agility on Complex Projects

The ability to act fast and quickly adapt to change is no longer a luxury for industrial enterprises, including energy domain players. As mentioned above, the vast amount of data to manage is just a part of the equation, and organizations need tools that allow and facilitate interactions between multiple stakeholders, ensuring that the right information goes to right person on the right topic at the right time. It is key to create a smooth information exchange among all key departments: engineering, construction and procurement. We correlate a strong desire from companies in the energy sector to create an ecosystem where people performing multiple roles can communicate and share data on common platforms and in a standardized way. According to the McKinsey & Company report, 98 percent of oil and Gas megaprojects suffer cost overruns of more than 30%; 77% are at least 40% late, mainly due to poor organization and inadequate communication.

Is my company offering a collaborative efficient centralized platform for managing CAD/BIM data and products lifecycle management to its stakeholders ?

**Do we have the capability to track the performance of our assets ?**

Are we able to make our technicians and operators more efficient and skillful ?

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🌱 Sustainability goals tracking

Across the industrial world, there is an emphasis on the importance of sustainability and GHG emissions reduction. This requires a series of capabilities and actions to adopt to make sure sustainability goals are being met. Energy players have sustainability commitments but also have the responsibility to participate in the energy transition that the world is going through. Central to this effort is the adoption of state-of-the-art and highly efficient energy management solutions for facilities, assets and people in terms of training, knowledge management, etc.

Energy sector actors have a double responsibility – attain CO2 emissions targets in operations **and** provide an environment-friendly ecosystem. These realities are forcing energy companies to reflect on and re-examine engineering, operations and maintenance models.
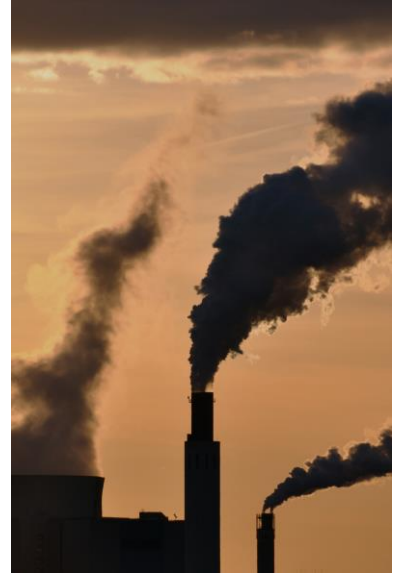
Are we able to determine what our GHG and CO2 footprint are ?

If yes, do we have a holistic view on details of this footprint ?

Are our operations efficient enough to meet our sustainability goals ?

👷 Talent acquisition, training and safety

Energy companies are acutely aware of the growing skills crisis and market leaders are increasingly thinking about ways of preserving skills and staying ahead of the competition.

In both Europe and the United States demand for technology skills (both coding and especially interacting with technology) is expected to rise by more than 50 percent by 2030, and the need for complex cognitive skills is set to increase by one-third, as stated in a

Mckinsey report. It is clear that companies will need to invest in continuous learning and development of workers' digital capabilities.

Last but certainly not least, safety has always been a crucial element for the energy sector. A culture and practice of safety is strongly interlocked with effective training and best in class conditions-based maintenance models and practices.

What strategy do we have today to retain and close gap of our workers' skillset?

Are we able to train our new employees for critical missions (for example, Turnarounds in oil and gas sector) efficiently ?

Is our engineering/technicians team using the right tools to communicate on product design and maintenance collaboratively ?