

## Operational Data Infrastructure as a foundation for Digital Transformation

Aamir Ahmed Butt

### Abstract:

Chemical process facilities are complex in nature and have for many years relied upon a variety of disparate software systems to ensure safe, sustainable and profitable operations. These systems generate huge volumes of data from a range of sensors and instrumentation across the plant. For years, engineers and managers have harnessed this time-series data, consisting of a tag value at a time stamp, to drive better decisions and implement a variety of improvements across their business such as plant monitoring, downtime tracking and process optimization. A challenge of this type of time-series and event data has always been that it is readily understood by plant personnel but not easily understood or made use of by others in the business.

In the current competitive environment, there is greater pressure on companies to further maximize productivity, lower costs and extend the lifespan of their assets. To achieve this, the industry trend has been increasingly driven towards companies exploring how to realize further operational improvements from the software systems and the data they generate.

One such area of improvement has been brought about by the advent of 'Big Data' systems that allow companies a means to visualize, analyze and understand all their operational data, and the complex inter-relationships between it all, in many new and exciting ways. This greater understanding of operational data can provide people across an organization with many new opportunities to further improve the operation of their assets – and accelerate Digital Transformation at the enterprise-level.

One area within the Chemicals industry already making big improvements with this advanced type of data analytics is around Asset Efficiency, Maintenance & Integrity. 'Big Data' systems are providing a better understanding of the true health of equipment - uncovering insights and early warning signs of impending equipment failures, efficiency degradation, and predictive maintenance for critical plant equipment. Companies who have started integrating all their structured and contextualized time-series and event data with 'Big Data' analytics and machine learning tools, are already seeing maintenance becoming cheaper and more effective, unplanned downtimes significantly reduced and plant productivity increasing - enabling them to drive further profits into their business.

In this presentation, we will cover real life case studies of organizations that have deployed the OSIsoft PI System as a centralized real-time (operational) data infrastructure, connecting both the IT and OT worlds, to drive the kind of Predictive Maintenance improvements we have mentioned above. Specific examples will be given where advanced real time operational data integration has taken place between OSIsoft PI and 'Big Data' analytics systems such as Microsoft Azure, to realize tangible benefits in the areas of critical equipment efficiency, reliability and integrity.