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**Topic:**

Digitalization in Fertilizer industries – Integrated Engineering to Integrated Operation

**Abstract :-****Making the most of your resources**

If the rapid transformation of the global fertilizer industry through digitalization teaches us one thing in particular, then it's that – by investing in innovative technologies designed to get the most out of the available assets and resources, companies can harvest significant gains over the long term – even in highly competitive market environments. Turning a profit in today's tight markets requires a high degree of process integration – from the planning phase of a new plant over the entire lifecycle. The future of the fertilizer industry, it is safe to say, involves optimization through digitalization.

**On the way to a digital enterprise**

Digitalization is the most effective way for customers in the process industry to improve their competitiveness. It allows decisions of never-before-seen quality to be made: fast, well-founded and based on facts. This creates new possibilities for systematic plant optimization throughout the entire lifecycle. With integrated hardware, software, and services, huge volumes of data can be captured from the process and used intelligently. The basis for this is a unified data model of the plant, the “digital twin”.

How the process industry can take a large step from integrated engineering to integrated operation – and thus toward becoming a digital enterprise?

**Integrated engineering**

If all engineering teams work with a unified data model, sequential processes can sometimes be carried out in parallel. This results in the plant's “digital twin.” This saves valuable time and costs while increasing engineering quality. In addition, the “digital twin” enables virtual plant simulation before the critical commissioning phase, thus supporting a smooth process during construction and optimized plant operation in the future.

**Integrated operation**

The “digital twin” also offers real added value during plant operation, since its unified data model and shared database ensure a continually updated digital image of the plant. For example, the intelligent linking of plant and process data allows maintenance and servicing measures and plant availability to be optimized. Such solutions are also available for existing plants and data can be used intelligently to systematically optimize the plants. Thanks to the integration of data from different levels – from the field to the automation and management level – plant transparency is increased. This creates the basis for fully exploiting the plant's optimization potential during operation.