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How to create the cement plant of the future

Building a fully digitalized and more sustainable cement plant requires just as much innovative thinking as it requires hands-on experience and knowing the ins and outs of everyday challenges in cement production. Basically, knowing the weak spots of the present in order to create the future. There is no way around facing this challenge. The cement industry must abide by new environmental regulations and reduce its emission footprint significantly. Otherwise, it risks losing economic strength and

resilience in the competitive global market. So, avoiding fines, achieving efficiency and maximum customer satisfaction are the driving forces of developing the cement industry into a more digitalized sector.

More than just digital transformation

When it comes to the cement industry digital transformation is not just a buzzword to stay current. It is a necessity that has been avoided for far too long or approached too slowly. Cement plant operators are now feeling the pressure and opening up to a new way of looking at their production processes. What would [the cement plant of the future](#) look like if we looked at each step in the entire cement production chain and optimized it?

Optimization through digitalization

The cement plant of the future can predict process behavior and product quality in advance and in dynamic operating conditions without having to put the entire production on hold. Instead, a digital twin calculates what-if-analyses allowing for an exact forecast of production factors and demand. In the future process behavior of the cement plant is continuously optimized. Digital Twins enable plant operators to explore and test scenarios without wasting precious time, material and resources or risking downtime.

Tweaking the production

Artificial intelligence will also play a major role in the future of the cement industry. Product quality of clinker and cement can be predicted with AI. An algorithm autonomously accesses process & laboratory data to find the best operating conditions technically, qualitatively, and economically. This will mean a leap in the quality standard of cement goods.

From analytics to performance

Data Analytics is the basis for AI and Machine Learning. To make use of data and adjust machines accordingly future cement plants will be equipped with state-of-the-art sensors, collecting data and making it available for evaluation in the cloud. This way, data availability and transfer times are improved. This opens up a faster way to improve cement production and save energy, avoid excess and unnecessary transport distances.

Security first

Speaking of data clouds: The transition to a smart cement plant is often accompanied with data security concerns. And rightfully so. To ensure the required level of [data security](#), certified digital solutions that abide and are regulated by EU law will be the new standard. [polysius® digital solutions](#), for example, are a strong partner to smarten up your cement production whilst keeping data safe.

Maintaining longevity

Predictive Maintenance has been around for quite some time. Implementing Predictive Maintenance that serves the individual plant it attends to is not an easy task. The cement plant of the future will have various touchpoints for predictive maintenance solutions and a holistic approach to maintenance.

Imagine an inspection drone flying over a cement plant, inspecting even hard-to-reach areas and making risky industrial climbing a thing of the past. The entire flight is recorded and accessible in the cloud by service staff. Also, data analytics solutions predict the optimal maintenance frequency and future needs of every machine in a cement plant. This will result in a better performance of the entire cement plant and prolong its lifespan by avoiding unnecessary new purchases.



The bottom line: The cement plant of the future will produce higher quality and achieve customer satisfaction whilst making the cement industry more sustainable. The only way to get there is by embracing the digital transformation. Let's start today. Let's make your cement plant smarter, greener and more efficient.
