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## **Are all data analytics techniques equally useful for process optimization in Industry 4.0?**

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Machine learning techniques are becoming top trending in Industry 4.0. These models have been successfully applied for passive applications such as predictive modelling and maintenance, pattern recognition and classification, and process monitoring, fault detection and diagnosis. However, there is a dangerous tendency to use them indiscriminately, no matter the type of application. For example, they should not be used for process optimization unless data come from a design of experiments (what is a severe limitation in industrial practice with lots of correlated process variables). On the other hand, predictive methods based on latent variables (such as partial least squares regression) can be used for process optimization regardless of whether the data come from a design of experiments or daily production process (historical/happenstance data). Some real industrial examples will illustrate this critical issue.

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