



POWERFUL DATA SUPPORTS STEEL—25 YEARS OF THE PI SYSTEM AT LIBERTY OSTRAVA

Liberty Ostrava (formerly ArcelorMittal Ostrava) is a steel manufacturing company located in the Czech Republic. Liberty Ostrava is a complete industrial plant, creating and running everything required in the steel manufacturing process, from the power needed to run the plant to milling and refining. Its extensive facilities include a coke plant, blast furnaces, steel casting plant, various kinds of steel mills, power plants, laboratories, and foundries. Despite the complexity of its data needs, its disparate systems were disconnected. “Unfortunately in the past, each plant developed their own system. So you can find several applications, in several different environments, run on several different kinds of hardware. It was a mishmash,” said Radim Lužný, Head of MES at Liberty Ostrava, during PI World Gothenburg 2019. “My task since 2015 was to unify the system as much as possible.”

A UNIFIED SYSTEM

“Because we implemented the PI System on blast furnaces in 1995, we decided to use it as a major unification platform for the other plants,” said Lužný. The first step to creating a unified data architecture was to implement [Asset Framework \(AF\)](#), the contextualization layer of the PI System, to organize data from all equipment into single hierarchy of assets.

Using calculations in AF, Liberty Ostrava was able to better monitor the blast furnace tapping process, where

coke and iron ore are layered into the furnace in alternating strata. The higher temperatures at the bottom of the furnace cause the materials to melt together to create steel, which flows out the bottom, with the slag rising to the top. Once data was structured with AF, the team used PI Processbook and PI Vision (for mobile) to create blast furnace displays. The displays show various furnace parameters, including blast furnace blowing, temperature, gas parameters, and blast furnace tap data. This data is funneled into predictive models in the PI System.

HIGHLIGHTS

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15% increase
in quality of steel
due to reduction of
temperature loss in
the blast furnaces

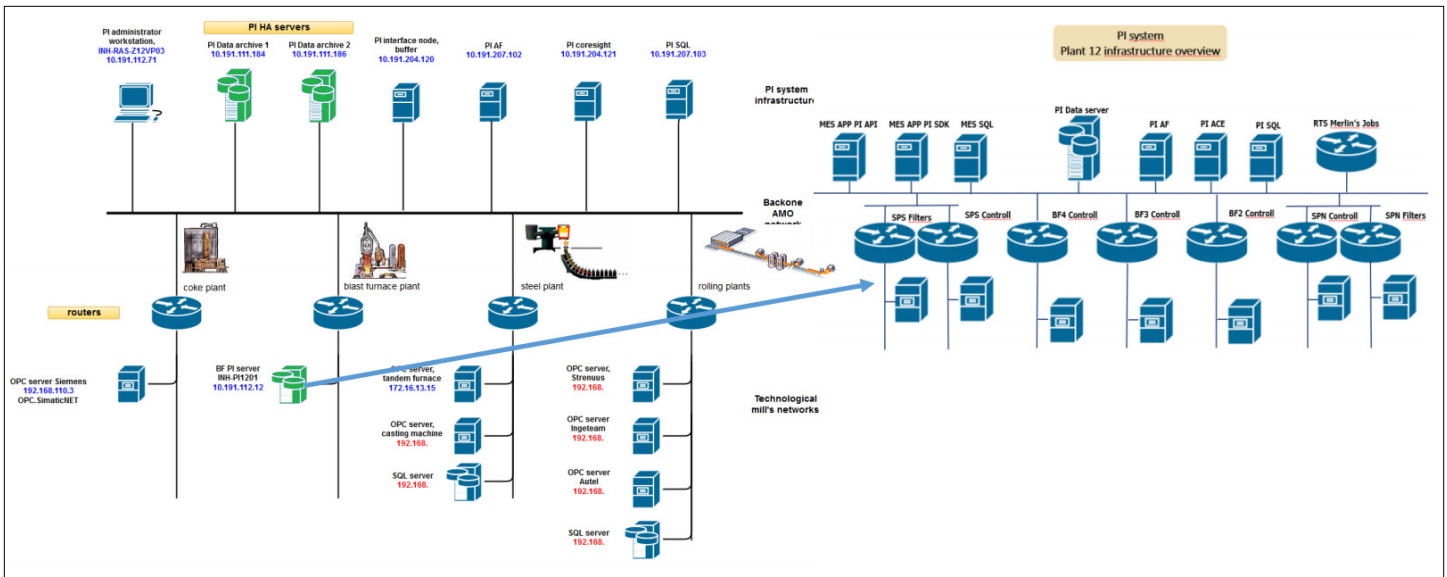
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Predictive
maintenance resulted
in **10% savings**
in avoided losses

...

PI System data
helped to prove no
fault to the insurance
company, saving the
company over **four
million euros**

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After almost 25 years of integrating the PI System into every aspect of its manufacturing process, Liberty Ostrava is reaping the benefits of a unified data infrastructure across its enterprise.

Monitoring the beginning and end of a blast furnace tap made it easier to calculate the burden being placed on the blast furnace, and lowered temperature loss during run time. Utilizing operational data to predict and implement preventative maintenance for the furnace resulted in 10% savings in avoided losses. The team also relies on event monitoring capabilities in the PI System to understand what is happening inside the hearth, which is at the base of the blast furnace, and not accessible from the outside. The data the team receives helps them predict the thickness of the hearth and avoid dangerous accidents like sharp iron ore piercing the side, which could result in a molten metal leak. The result? After the application of these PI System-based analytics, product quality rose 15%.

YOU CAN'T ARGUE WITH THE FACTS

But the PI System's value isn't just in data models and automation. Its ability to effectively archive years of complex and varied data can be used for long-term trend analysis as well as for maintaining an impartial record of events. Lužný described an unusual

incident where historical data in the PI System proved invaluable: "There was a disaster on the sinter plant belt, and the insurance company didn't believe us that we followed all the rules in the production process." Liberty Ostrava would have been accountable and forced to take a major loss. "But based on PI System data, we won this fight with the insurance company and saved a lot of money. Again, a big success of the PI System installation." The PI System saved Liberty Ostrava over four million euros in damages.

So what's next for Liberty Ostrava and the PI System? Lužný expressed enthusiasm at how much the PI System has grown in capability and application since the beginning of their partnership, and is looking forward to transitioning from PI ProcessBook to the latest version of PI Vision. "Yesterday I saw how easy it is to migrate ProcessBook to PI Vision. So this is the next step for our team."

For more information about Liberty Ostrava and the PI System, watch the full presentation [here](#).



Almost 80% of our company is covered by PI System communication, the rest is a step for the future."

— Radim Lužný, Head of MES at Liberty Ostrava



Watch this [2-minute video](#) to learn more about Liberty Ostrava and the PI System.

Lužný, Radim. "Liberty Ostrava Automation via PI System" <https://www.osisoft.com/presentations/liberty-ostrava-automation-via-pi-system/>