Connecting the Dots of Digital Transformation to Empower Self-Sufficiency

Key Facts

Company: Rustenburg Platinum Mines Limited (Anglo American Platinum)

Website: www.angloamerican platinum.com

Industry: Metals & Mining

Country: South Africa

Products Used:

- j5 Operations Management Solutions

Key Benefits:

- Centralized human entered data
- Easy to configure, maintain and scale to multiple sites
- Saves valuable time for operators and super users
- Reduces the need to purchase expensive point solutions from multiple vendors

In many ways, platinum production is governed by extremes and contradicting laws. Platinum is used in everything from the mundane to the rare — from catalytic converters to silicone bakeware, jewelry to cancer drugs and fertilizer to medical implants. Demand for platinum is high, growing, and crosses multiple industries. Anglo American Platinum, the largest platinum producer in the world, is responsible for 37% of the world's platinum production. Platinum mines remove huge amounts of rock from the earth to extract tiny bits of platinum. Anglo American Platinum typically mines 2.6 tons of rock to get just 1 gram of platinum. Platinum producers must extract every bit of platinum they can from their loads even those invisible to the naked eye. Anglo American Platinum can extract platinum that's only 5 microns large — that's the size of a spec on an ant's eye. In a typical year Anglo American Platinum produces around 68 tons of platinum. In 2020, even with COVID-19 related limitations, they produced 37 tons of platinum. All of this requires an army of processes working together effectively and efficiently and that's where digitalization comes into play.

The Problem

As Warren Armstrong a Control Technology Specialist at Anglo American Platinum explained in his talk at HxGn LIVE evolve720 in 2021, digitalization is nothing new, but the techniques, tools, depth and pace of digitalization today are vastly different. Anglo American Platinum began their journey toward digitilization by connecting their process systems with their big data collectors and data generators. While that covered a lot of important information it did not cover everything. One symptom of the lack of comprehensive data interoperability within Anglo American Platinum was the rampant proliferation throughout operations of vital spreadsheets housing human and manually entered data. As Warren explained, spreadsheets are the "digital duck tape that patches the holes in your system." So Anglo American Platinum switched their focus to removing the duck tape and fixing the holes.

"What we're now looking for is the human data, the ad hoc messy spreadsheets, the ingrained ones... with built-in process knowledge, ... [the] human systems... that are all over the place in the plant, tracking little changes from year to year." "We want to capture those and be able to actually expand them and show them

to other people." "This data… is very valuable, so are the processes [behind] it but integration is time consuming, difficult to build and maintain. If you've got a big system, it's worth the effort [but] when you have lots of these little things it's a huge amount of effort for a tiny little bit of data. It becomes not sustainable at all."

As Warren points out, the point of digitalization is to make information usable and reusable — "what you leave behind needs to be sustainable and maintainable" and it needs to be simple — throwing an app at every issue just leads to app proliferation which, as Warren points out, "soon becomes very confusing and frustrating for everyone in the plant, especially if you've got someone actually trying to run the plant and they have to dig through tens of apps and things to put data in different places". "You need to find more of a system where you can give people the power to do the work themselves, their own digitization, something that is flexible and natively integrates."

The Solution

As Warren explains, Anglo American Platinum's principle for their solution was simple: "Let the people who know the process best actually build up the systems and do their own digitization. Because there's no way you're gonna know better than they do, they work there every day."

That philosophy became the driving theme of their implementation. Anglo American Platinum began slowly by implementing j5 Operations Management Solutions (j5 OMS) at five sites to gather the human and ad hoc data scattered throughout their operations and interface it with their PI System™ from OSIsoft™[1], SQL databases, custom websites and other operational data sources. Anglo American Platinum has found j5 OMS — with its patented spreadsheet-like configuration environment — to be a flexible and robust solution for collecting and connecting their human data, centralizing ad hoc information, managing scheduled tasks, enhancing shift handovers and maintaining management of change. "[It's] easy to use, has a great, deep, rich feature set which you can get going with

quite quickly," said Warren. "In some ways, [it's] similar to Excel which is a great starting point for people onsite or someone to learn because they're very familiar with Excel."

The Benefits

Although still early in their deployment, Anglo American Platinum has already seen benefits from their initial deployments and an exponential growth in j5 OMS adoption. Operations have been simplified and, in some cases, entire systems have been eliminated. For example, on one shift log, before using j5 OMS, operators had to enter 41 entries each day on spreadsheet on a shared drive. Now operators use a j5 IndustraForm® Template that has built-in interoperability with the PI System and only need to enter 12 values. The shift log is easier to find too. "And the most important thing on this…" Warren says, "that form was actually built by the site."

And that was just one benefit. Six j5 IndustraForm Template instances replaced a custom website for manual data entry. "When you can decommission a piece of software," Warren says, "it's actually a really great feeling." In three months, using j5 OMS, Anglo American Platinum implemented a full management of change process at a smelter. The new solution is traceable and auditable and connects with Microsoft® Power BI for reporting and it can be easily expanded to other sites.

But, as with every good system, the initial deployment is not the end. As Warren explains, "Operations… are continuously changing… and they need to change to extract the most, highest, amounts of efficiency." That means the systems you put in place and the tools you use need to adapt and grow with you. "Today's issues and watch lists are not tomorrows, they change continuously so your systems actually need to keep up." "If a plant needs a change done, they need it right away. They can't wait two days for a developer or to log a call to get a change. It's not practical." You need to "empower your end users. Find the tools, provide the systems for them and the infrastructure so that they can actually use those tools well."

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1 OSIsoft is now part of AVEVA™

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Hexagon's PPM division empowers its clients to transform unstructured information into a smart digital asset to visualize, build and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire lifecycle.

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