Creating a digital twin of equipment to optimize operation

Creating a model to optimize operation of machinery and equipment and eliminate variation between operators

REDE achieved this using
• SAS® Viya® • SAS® Studio • SAS® VDMML • SAS® OR • SAS® Model Manager • SAS® ESP

SAS Hackathon 2023 • Technology Winner for IoT • IoT Track

Challenge

Equipment productivity at places like mining sites depends heavily on the operators of that equipment, but can have a huge impact on outputs and outcomes.

- Operators cannot guarantee optimal performance of equipment.
- Different equipment has different parameters and needs.
- There is also considerable individual variation.

Innovation

This solution brings together SAS and open source technology to improve the performance of a wide range of machinery and equipment.

REDE:

- Created a model incorporating constraints, goals and control parameters.
- The model draws on input from sensors to optimize performance of equipment.
- Users can input their own variables for maximum flexibility, and receive recommendations for optimization.

Impact.

The solution has the potential to improve the performance of equipment. Results to date show:

- Throughput increased by 1–2%;
- Output material quality increased by 3–4%; and
- Power consumption lowered by 1.5%.

> "Even the best operator cannot be working all shifts."
>
> Vyacheslav Zakharov • General Director • REDE Management Consulting