novacura academy

HOW TO CONNECT MINING EQUIPMENT DIRECTLY TO YOUR BUSINESS SYSTEMS.

CONTENT

INTRODUCTION

This article is for Mining companies who want to increase their operational efficiency by improving the accuracy of information provided to managers.

In this article we´ll present how to retrieve data and information from mining equipment and how to send it directly (and without delays) to the business system, for example a planning system or reporting system etc.

1. TYPICAL CHALLENGES IN MINES OBSERVED IN THE NORDICS.

In the Nordic countries, there are several new ongoing mining investments. Old mines of copper or iron are being restarted. But there are also several new projects. It generates huge investments in the physical infrastructure and expensive mining heavy equipment. The level of investments puts pressure on the operational effectiveness – investors expect ROI in relatively short term. It naturally means that the utilization of the equipment becomes the key factor to work on. But in the wider context, companies must focus on the "cost per ton" indicator.

In short, a lower "cost per ton" can be achieved by improving the following areas:

- **Accurate production planning** – it must be relevant, based on real data regarding factual average equipment efficiency and considering current/updated situation (has a direct impact on the utilization).
- **Reduction of downtime** – this can be achieved by optimizing maintenance activities time (also has a direct impact on the utilization).
- **Reduction of waste** – that can be optimized i.e. by precise waste control in every production stage.

According to our experience, one of the key problems that reside behind the above issues is information accuracy. The good news is, that by improving information accuracy we can impact all issues.

2. WHICH ARE THE TYPICAL PROBLEMS?

In Novacura we have over 10 years of experience in the mining industry. We have observed a common problem with information accuracy because of a broken “flow of information” between operational systems (used in daily production) and business systems like planning systems, reporting systems, financial systems. **We see a gap here.**

TYPICAL SITUATION IN THE MINE:

2.1 THIS “GAP” CONSISTS OF 3 ELEMENTARY PROBLEMS:

A.

Information is gathered manually – very often by maintenance activities. It increases of course maintenance costs but causes another big problem: downtime. Maintenance measures are often disruptive to production, in many cases a machine must be switched off to be able to perform certain measures.

B.

Information comes too late – decision-makers (that operate at the business systems-level) can’t see accurate and up-to-date information they gathered and imported manually. It generates delays counted in days. And it has a fundamental impact on planning accuracy and the quality of decisions made by planning managers.

C.

Information is not precise enough – because of the problem with the manual gathering of information and also it’s disruptive impact on the production, operations can’t be measured on every production stage with the required quality. It means, decision makers –even if they measure some problem at the end, cannot easily identify the root cause of the problem in the process

And the scale of presented problems is large – the utilization in the mining industry comparing to other similar industries is still relatively low. But the problem also has a somewhat positive side: there is still a lot to be improved and companies who decide to change their conventional thinking can achieve a competitive advantage.

“ *A typical mining facility can be at 65-70% availability, while – i.e. hydropower production in hydropower plants achieve 98 - 99.5% availability around the clock. This simple comparison shows the scale of the potential that still resides in mining.*

Östen Westman
Sales Director at Novacura

3. OUR SOLUTION: COM-MUNICATION GATEWAY.

In Novacura, over many years of working within the mining industry we have developed a technology that solves above problems based on the following assumptions:

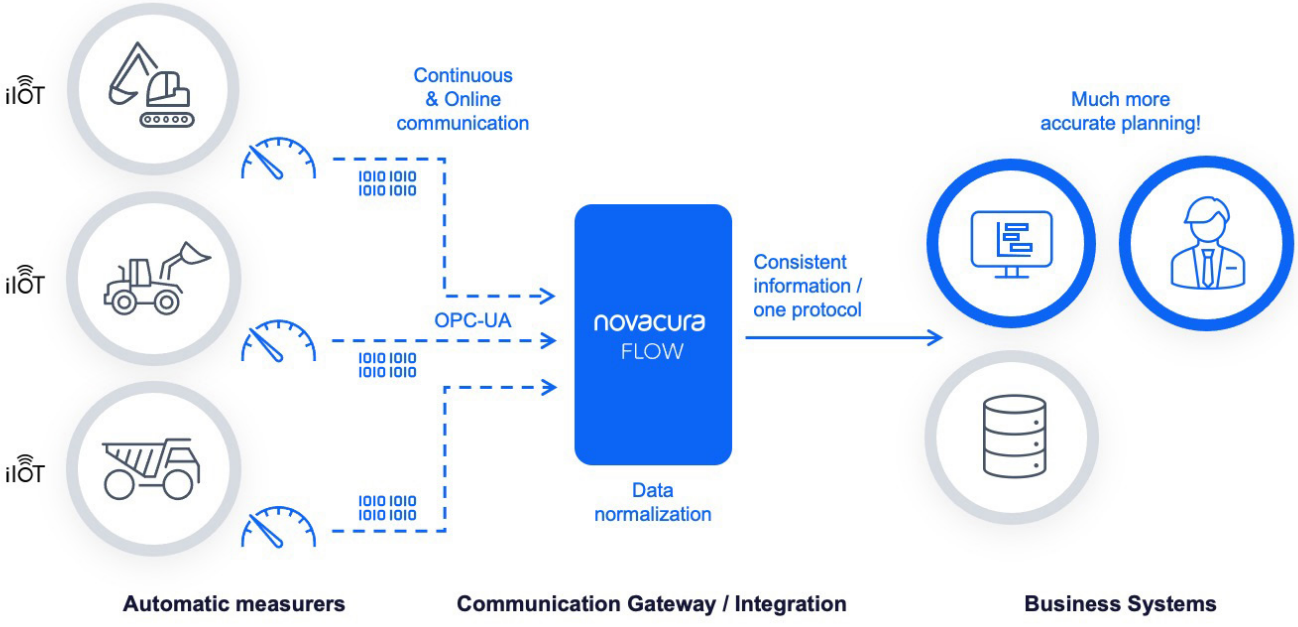
1. Connect directly to the mine equipment by offered interfaces
2. Gather information automatically, without manual tasks
3. Gather information frequently, in a non disruptive way
4. Send information in the online mode to the business systems

The solution that we provide is based on our flagship product Novacura FLOW and sits between operational equipment and business systems and takes care of all technical aspects of data integration.

Novacura FLOW uses the latest technology protocols available by IoT devices (like OPC-UA protocol) to gather information stably and securely.

Gathered raw data is processed by Novacura FLOW before it is sent to the business systems – some information might be converted or even corrected by our "Comm nica-tion Gat wa ", so the final information stream that goes to the business systems is standardized and unified.

AUTOMATIC MACHINES INTEGRATION PROVIDED BY NOVACURA:



4. WHAT EQUIPMENT CAN BE INTEGRATED?

Almost all mining equipment produced nowadays can deliver data interfaces to read operational data and machine parameters automatically from the machine. Some examples of equipment that we can connect to:

- Trucks
- Excavators
- Crushing machines
- Industrial Scales
- Conveyors
- Iron ore filters

5. BENEFITS OF IMPLEMENTING NOVACURA GATEWAY?

5.1 BENEFIT: BETTER PROCESS OF INFORMATION IN THE “BASEMENT”.

There are some obvious benefits of implementing Novacura FLOW to act as a Communication Gateway to gather and transmit information from operations to business systems:

A.

THE INFORMATION IS AVAILABLE IMMEDIATELY.

The information can be received/refreshed from the equipment in the periods counted in minutes (instead of days in the conventional approach).

B.

THE INFORMATION IS MORE ACCURATE/PRECISE.

The information is measured automatically, measurement can include much more parameters and data resolution can be might higher. Measurement points can be set very frequent (i.e. on each production stage) –this frequency is not possible in a standard manual approach, because costs of measurement would be too high.

C.

THE INFORMATION IS OBJECTIVE.

There is no “human factor” in the data gathering process – there is no field for human mistakes or intentional interference in data.

D.

THE INFORMATION IS OBTAINED COST-EFFECTIVELY.

There is no manual work needed to read, process and transmit the information.

E.

THE PROCESS DOES NOT BREAK THE PRODUCTION.

The process of obtaining information does not break the production - no need for maintenance breaks to obtain information.

5.2 BENEFIT: BETTER PROCESSES IN THE "UPPER FLOORS".

Above we have presented 5 direct benefits of implementing automatic information transmission instead of manual processes. Let's take a look at how these improvements support 3 key challenges that we've identified at the beginning.

A.

IMPROVEMENT IN PRODUCTION PLANNING.

- The Planning System is feed with data by Novacura FLOW in a continuous way. All the data is correct and is refreshed very frequently.
- People responsible for planning get instant information regarding unexpectable breaks or other problems.
- Normalized efficiency of particular equipment items (used to plan the future work) is calculated based on real & precise data and is updated when overall conditions change.
- As a result, the Planning Specialist have the full view of the real situation and can adjust plans to it.

B.

REDUCED DOWNTIME, BETTER UTILIZATION.

- Since the automatic measurement & data transmission takes place simultaneously with the operational production ("in the background"), it doesn't stop the operational activities. So, it has no negative impact on the utilization –it doesn't generate downtime (as with conventional approach).

C.

LOW MAINTENANCE COSTS.

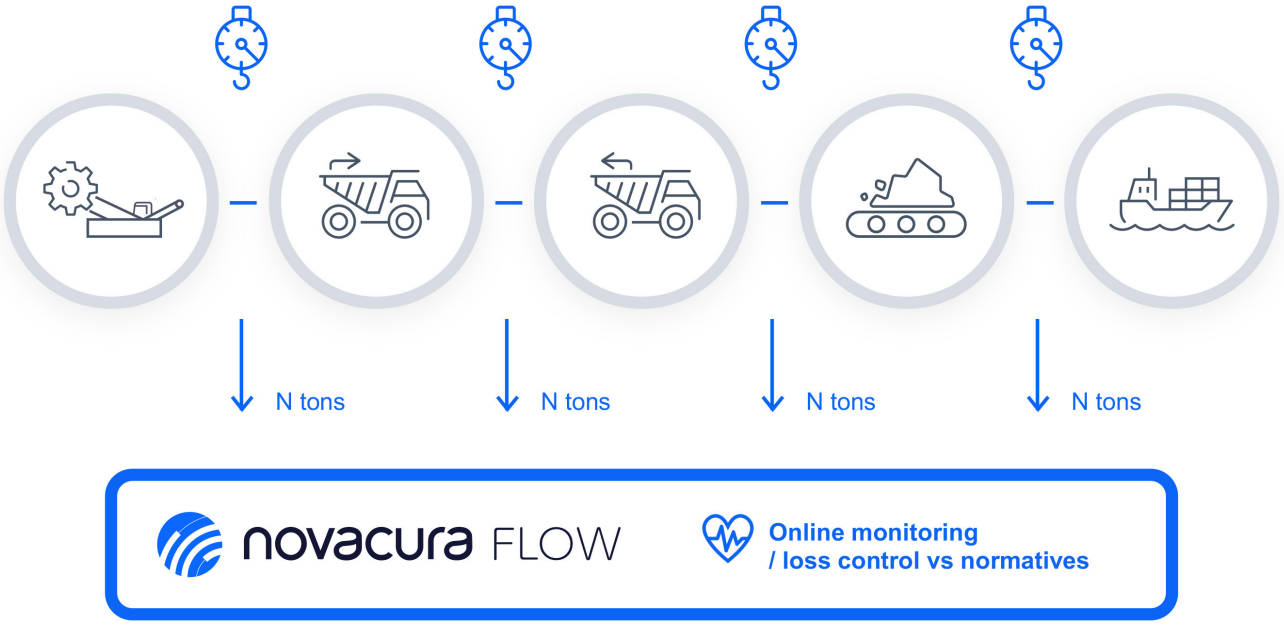
- The cost of the maintenance is reduced – there is less work to do in measurements or data preparation.

D.

REDUCED DOWNTIME, BETTER UTILIZATION.

- Because the automatic measurement is way more cost-effective, measurers can be set very frequently and measurements waste on every stage.
- It helps not only to identify the overall waste level but also to track on which stage the most of waste/loss is generated.
- Additionally, it gives better control over the production process – the ineffectiveness of waste creation can be measured In every shift separately and can be compared to the norm.

WEIGHT CONTROL ON EVERY STAGE



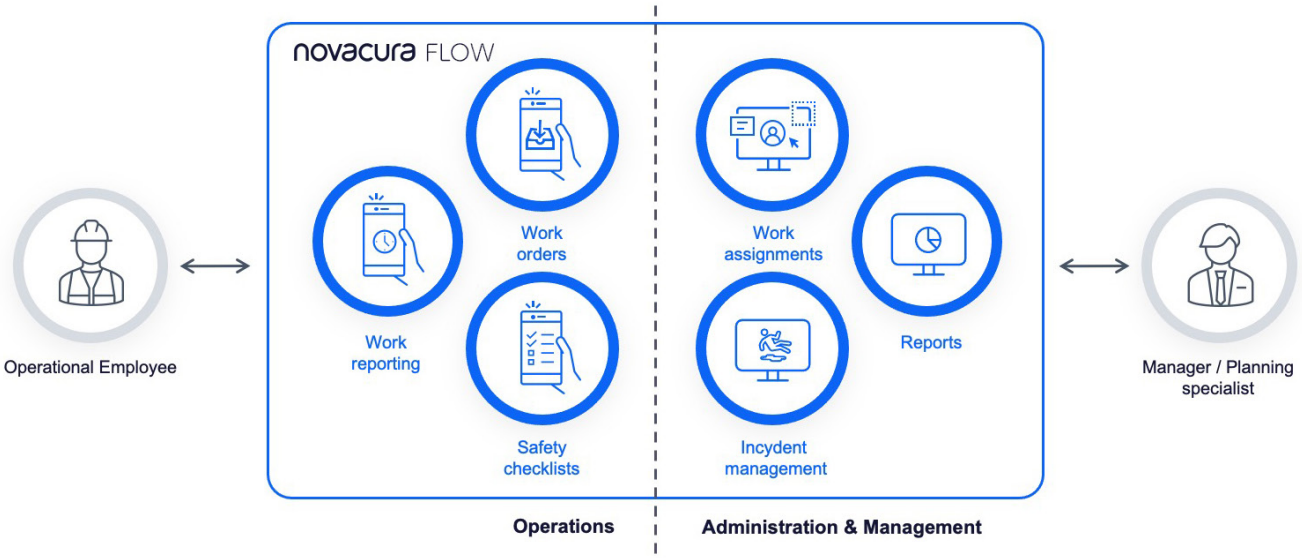
6. ADDITIONAL FEATURES AND BENEFITS.

The benefits of implementing Novacura FLOW does not end with the list we´ve presented. Novacura FLOW is a very elastic platform, that offers a lot of additional functionalities required in the mining industry:

- **Mobile Work orders** for operational and maintenance employees – available on mobile devices
- **Work orders reporting** on mobile devices (including stock reporting, time reporting, waste reporting)
- **Security checklists,** incident management, escalations
- **Documentation management**, maintenance instructions library available on the mobile device
- **Quality** control / inspections

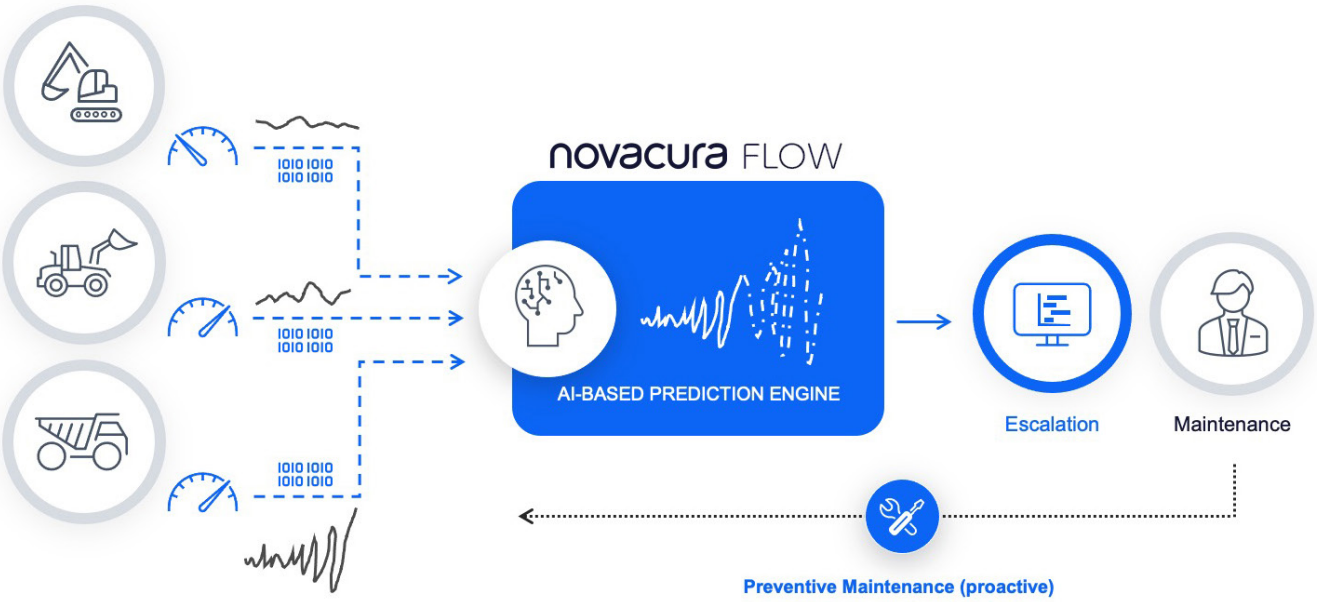
The key advantage with Novacura FLOW is that all these elements are **"by default" integrated** with each other because they are running on the same engine – Novacura FLOW Platform. Since Novacura FLOW is a low-code platform where you can create your own applications by simply drawing them, they can easily be customized to the customer's needs .

ADDITIONAL BENEFITS OF USING NOVACURA FLOW IN MINING



6.1 THE FUTURE IS HERE...

Thanks to the AI engine connected to the solution (which is available right now in our platform), we will be able to predict future damages and reduce maintenance costs and production breaks.



"Companies that implement Novacura FLOW mobile solutions can expect a lot of feedback from their employees and get much better quality in work reports received from them.

Östen Westman
Sales Director at Novacura

7. HOW TO IMPLEMENT IT.

The more functionality and capabilities the Novacura FLOW solution offers, the more complicated it might look, especially when it comes to the implementation project. But it´s not as challenging as it might look, because:

A.

We have a mature implementation methodology divided into stages (like initial requirements workshop, feasibility study, etc.) – that way the whole project is predictable and can be fully controlled and coordinated by us.

B.

We have 10+ years of experience in mining. There is a library of ready-to-reuse mining applications that can be presented to the customer and customized according to his needs. Meaning applications don't have to be developed from scratch.

C.

Novacura FLOW is a lowcode platform – so everything that should be done individually for the customer (including specific business systems integration) can be developed as a part of the same solution.

D.

We have a solid base of industrial connectors – the technology is no longer a problem.

> *"They really don´t have to do anything. We often help with feasibility studies or analysis where we together with the customer go through different scenarios and look at solutions. We work a lot with prototyping where we develop solutions step by step through a prototype.*

Östen Westman
Sales Director at Novacura

TALK TO OUR EXPERTS.

If you are interested in implementing the presented solutions, please contact us.
We will help you shape the final solution and take care of the whole implementation plan.

Östen Westman
Sales Director at Novacura

Experienced Sales & Business Development Director with a demonstrated history of working in the information technology and automotive, energy and mining industry.

Strong business development professional with a Business Administration from Stockholm School of Economics IFL Executive Education and a BSc in Engineering.

GET IN TOUCH

ABOUT NOVACURA

www.novacura.com

Novacura is a human-centric IT-company using services and software to streamline and simplify our customers' business-critical processes and ERP platforms.

Novacura Flow, our signature software, is a low-code platform that helps businesses optimize their mining processes using custom mobile applications. Flow works as a layer on top of your existing business systems, helping you connect data from multiple sources into easy-to-follow workflows and apps.

The Novacura Flow low-code platform helps mining companies lower operating costs, improve facility uptime and drive up profits by putting the control of all your processes at your fingertips. It's fast, collaborative and flexible: all the things you want your mining operation to be.

To read more about what we do for Mining companies go to novacura.com/by-industry/mining

novacura

THANK YOU.

HQ / SWEDEN
Björklundabacken 10, 436 57 Hovås
Social Media
twitter.com/novacura
facebook.com/novacuraofficial
linkedin.com/company/novacura-ab

Novacura AB
VAT: SE556675815601
IBAN: SE13 9500 0099 6042 1512 4787
BIC: NDEASESS
D-U-N-S® no: 351910828
Bankgiro: 5273-1833

Contact
t. +46 31-760 46 00
info@novacura.se
product.support@novacura.com
www.novacura.com
www.marketplace.novacura.com