



One and done

A unified platform approach helps miners overcome the complexities of today's business processes

DAVID WESTLAKE – Managing the mine-to-market process is a complex challenge for any company. Manual methods and point software solutions cannot start to address the intricacies and the need for real-time visibility that characterize today's closely interrelated commercial and outbound logistics processes. The Agnico Eagle company experienced this firsthand as it grew from a single operation to seven operations spanning three countries and from providing a handful of products to more than 20 different products – all in the course of a few years. A unified platform approach to automation has helped Agnico Eagle overcome the complexities of today's market business processes and has empowered the company to reduce costs and improve commercial outcomes.



The primary benefit of automating via software is that data can be entered once and the business rules in the system take it from there.

Agnico Eagle is a leading international gold producer, with mines and exploration properties in Canada, Finland, Mexico and the United States → 1. Not so long ago and in common with many other enterprises, its market business processes were managed almost entirely with Excel spreadsheets and Word documents. But, as the operations expanded across multiple mines, countries and languages, a more robust means of managing these processes was required. Today, Agnico relies on a unified software platform to manage and streamline its mine-to-market processes. The resulting real-time vis-

ibility and elevated levels of coordination have led to lower administrative costs, tighter inventory management and quality controls, and improved commercial outcomes.

This platform approach to automation was used to improve processes across five of the most complex areas of commercial and logistics operations today: contracts, compliance, logistics, invoicing and risk management.

Streamlining management of complex contracts

Commercial contracts have become very complex and challenging to manage. At Agnico, the sheer number of different types of contracts across multiple products (gold, silver, copper, zinc and lead) was starting to weigh heavily as administrators wrestled with issues such as multiple contracts within a single product, specific quality specifications and com-

plicated payment terms and delivery schedules. As operations continued to expand, it was clear this would soon become too onerous a process to manage manually, as well as too costly in terms of personnel.

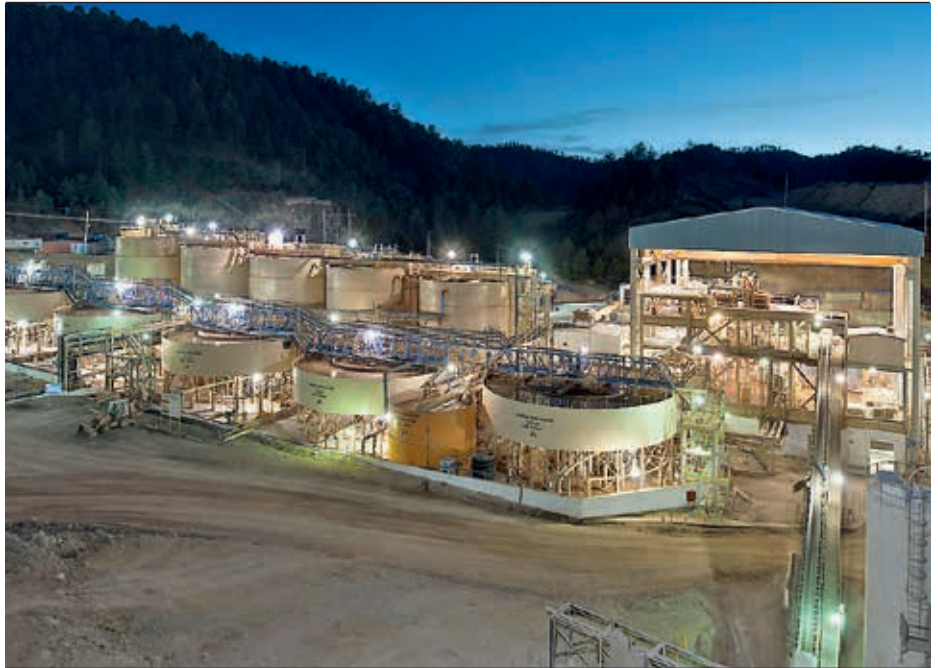
In moving to a software platform, contract administration was one of the fundamental areas that Agnico sought to improve. The primary benefit of automating via software is that data can be entered once and the business rules in the system take it from there. Essentially, the contract data goes into the system where it is checked automatically for accuracy and completeness – ensuring the contract is calculated correctly. With the administrative paper chase eliminated, company personnel can spend more time on more constructive tasks. Equally important, accurate invoices can now be generated immediately after month close instead of weeks later.

Title picture

After raw produce is mined, it is only at the beginning of a long and complex path to its ultimate use. Keeping track of all the business processes involved in that journey is best done with one unified software platform. Shown are trucks hauling at Agnico's open-pit gold mine in Canada.

The unified software platform manages and streamlines mine-to-market processes. The resulting real-time visibility and elevated levels of coordination have led to lower administrative costs, tighter inventory management and quality controls.

1 Agnico's Pinos Altos processing plant on the Santo Niño fault in northern Mexico



Meeting complex compliance, auditing and reporting requirements

In mining, compliance is an absolute → 2. A company that does not comply with regulations does not operate. Robust auditing capabilities are fundamental to ensuring and proving compliance with Sarbanes-Oxley and other mandates, as well as to reconciling what has shipped to a customer compared with what a company believes it has produced.

not only saves a company time and effort, and streamlines the audit process, but it also enforces the segregation of duties that is frequently required for compliance. As a publicly traded company, Agnico has benefited greatly from these capabilities.

Software also enables easier reconciliation of output and customer delivery. At Agnico, software is leveraged to achieve visibility into the actual assays of truck shipments and to track individual truck units right through to the end customer.

Agnico can create a month-end invoice for any outstanding invoice utilizing an accurate month-end valuation of inventories. This allows an instantaneous total calculation for mark-to-market accounting purposes.

Software enables a company to achieve full control over its information. With a software platform, data is checked and audited to ensure contracts have been entered into the system correctly, and access to commercial data and invoicing is tightly controlled (access privileges, change history, etc.) and continuously monitored. This information lockdown

Additionally, visibility into outturn weights and assays can also help a company adjust its mining plants and plans (eg, tracing quality issues to their source to facilitate fixes) and operate more profitably through improved mine grade understanding. At Agnico, this vital visibility is part of a feedback loop to drive continuous process improvement.



Software has given Agnico visibility into, and control over, logistics operations. Logistics personnel can visualize what is in each truck in terms of contained metal and its value, and are able to see which truckloads are allocated to which railcar.

Taming complex logistics

Another challenge common to all mining companies is to manage complex shipping environments and shipment scheduling. This includes managing multiple forms of transportation as well as rapidly changing capacities, contractual

drive optimal logistics, just as if each truckload was a building block imprinted with information. For example, certain blocks can be held back should it be discovered that a rail line has a problem, while other blocks can be substituted as required to fulfill the order to the customer.

Another important lesson has been to get all of the key people actively engaged – and keep them engaged – throughout the implementation cycle.

quotas and variable delivery schedules. This is more than just a matter of moving minerals and metals to market. It is also a matter of visibility – understanding what materials went into which trucks and railcars and where the materials ultimately ended up.

As with contracts and compliance, software has also given Agnico visibility into, and control over, logistics operations. Logistics personnel can visualize what is in each truck in terms of contained metal and its value, and are able to see which truckloads are allocated to which railcar. And they can use the software to “move” the truckloads around between railcars to

There is a significant ancillary benefit of this visibility, one that flows across several complex processes. Through the software platform, Agnico is able to visualize and value at any given moment (especially

month and quarter ends) its entire inventory and precisely what is in transit and/or still a receivable. This is a major leap forward from merely “seeing” a mass of inventory with no clear handle on its composition and value until a formal reconciliation can be done.

Accelerating complex invoicing processes

As with contracts, invoices increase in number and become more complex as a mining company grows. As mentioned above, software enables contractual data, charges, weights and assays, and so on to be entered and checked just once. Consequently, rather than worrying

3 A unified software platform integrates all required business information, like data from the grinding mill control room shown here.



whether terms and conditions are correctly reflected, personnel can instead focus on ensuring that the underlying data is correct and on timely invoicing.

No longer must employees repetitively agonize over whether a penalty or a specific commercial term has been included in an invoice, because its inclusion has been verified by the software. Similarly, business rules in the software can automatically put in current Metals Bulletin or Metals Week pricing, so personnel are relieved of this repetitive task as well.

At Agnico, this has dramatically accelerated the invoicing process.

Simplifying complex risk management

It is endemic in the mining industry that companies are subject to price fluctuations at every accounting period close. Hence, it is critical to have a full and accurate picture of month-end inventories in stockpiles, in transit and in warehouses, and of their valuations so that there are no surprises. At Agnico, this ability is enabled by the same software platform that is streamlining contracts, driving compliance, taming logistics and accelerating invoicing.

Consequently, Agnico is able to create a month-end invoice for any outstanding invoice, strictly for internal use, utilizing an accurate month-end valuation of inventories. This allows the creation of an

instantaneous total calculation for market-to-market accounting purposes – so the total current value of what the company has in transit, in inventory and in unpaid invoices is known.

Software enables contractual data to be entered and checked just once, so personnel can focus on ensuring that the underlying data is correct and on timely invoicing.

As an important ancillary benefit, this same capacity powers Agnico’s ability to issue provisional invoices, which are subsequently followed by a final invoice. Again, this helps avoid surprises, such as customer bill-backs, while also improving cash flow.

Requirements for a successful software solution

Point software solutions are as incapable as manual methods of addressing the complexities and needs for real-time visibility of today’s closely interrelated commercial and outbound logistics processes. As can be seen from the five complexities outlined above, the key word is “interrelated.” Point software solu-

tions do not “do” interrelated processes nearly as well as a software platform that shares data, visibility, business rules and other functionality across multiple processes. For this and other reasons,

an end-to-end platform solution figured large in Agnico’s push to automate its market business processes.

Other key considerations included support for complex operations with ample headroom for growth, along with the function-

ality to enforce standardized business practices across the company’s multinational, multi-time zone and multi-language operations (eg, issuing standard formatted invoices and centralizing the rollup of month-end commercial results/numbers/projections across all operations). Equally important was the ability to provide end-to-end market business process visibility, giving real-time product quantity and quality information at all points in the commercial and logistics chain.

Agnico Eagle’s results to date

The platform solution that Agnico implemented, Ventyx MineMarket, was built expressly to manage the complete mine-

Data is checked and audited to ensure correct entry. Access to data is tightly controlled and monitored. This not only saves effort and streamlines the audit process, but it also enforces the duty segregation frequently required for compliance.

to-market process. A high-level view of the business advantages realized thus far include:

- Faster order-to-bill and time-to-payment cycles, leading to improved cash positions.
- Reduced risk and incident of errors, contributing to customer satisfaction and improved commercial results.
- More controlled data into accounting, enabling improved compliance processes and reduced financial risk.
- Streamlined and less paper-intensive financial auditing, reducing third-party auditing costs.
- Reduced administrative workloads, allowing personnel to be refocused on more strategic tasks.
- Consistency across business processes such as invoicing, alleviating workloads for accounts receivable and other departments touching various market business processes.
- Accelerated financial reporting, including faster mark-to-market reports.
- Improved analytics and forecasting, powering improved business intelligence and planning, ensured product quality, and closer alignment of production and demand.

Lessons learned

Automating mine-to-market operations end-to-end is a significant move and companies can expect to learn many things along the way. At Agnico, the most important lessons included the need to not simply ask what the software can do for the company, but also to focus on what the company needs to do with the software. In other words, decide what the software should accomplish and then adapt it to the specifics (eg, if the software should support the processes already in place or be used to

completely revamp and improve current processes). To enable this, the platform has to be flexible – that is a priority. But the company has to be flexible too.

Another important lesson is to get all of the key people actively engaged – and keep them engaged – throughout the implementation cycle. A sea change of this import cannot be implemented solely by fiat – it requires buy-in and collaboration across multiple process participants, data owners and day-to-day users. For example, stakeholders should determine in advance what reports, types of contracts, etc., are needed to allow appropriate software configuration. That way, the stakeholders have ownership.

Equally important is to select a vendor with deep domain expertise in mining as well as process automation – and a vendor who will be around for the long term.

Finally, business expansion should be pre-empted: A limited number of processes and operations can be supported on a software platform, with expansion to more as required. This way, expertise in using the software can be built up and the company is ready to act quickly when growth projections become reality. It is easier to build from the ground up than to remodel at a later date.

One for all

The five areas of complexity described above are just some of the ways that Agnico Eagle has benefited from moving the management of its market business processes from spreadsheets to a unified software platform → 3. Other uses include running “what-if” scenarios to stay ahead of changing business conditions and engaging in more accurate demand planning. The beauty of a plat-

form approach is that the same platform can automate (and link) multiple business processes, eliminate silos of information and ensure that complete and up-to-date information is available across all mine-to-market operations.

It is not just precious metal miners like Agnico that can benefit from automation and access to real-time information across the commercial and outbound logistics chain. Base metals, coal, iron ore – practically any type of mining operation – stands to benefit as well. Mine-to-market operations are going to become even more complex and subject to auditing over time. Piles of spreadsheets, point solutions and disjointed processes only add to the complexity, but a platform approach enables miners to tame it.

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