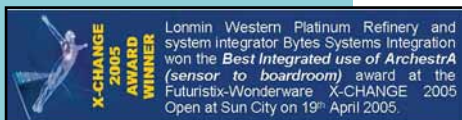


“ArchestrA technology is a powerful tool that, amongst other things, really simplifies the integration of PLCs, reduces engineering costs and facilitates the deployment of plant objects and updates - ask our system integrators, we think they will agree.”

**Dries van der Lith, IT Manager,
Lonmin WPR**



A truly integrated “sensor – to – boardroom” management system at Lonmin

by Futuristix

Western Platinum Refinery processes concentrate originating from the Western Platinum Complex in Marikana. The plant processes Platinum, Palladium, Gold, Rhodium, Ruthenium and Iridium. The production output of the plant has steadily increased over the years and the Platinum production amounted to 913,263ozT for the 2003/2004 financial year.

Some time ago, WPR started an ambitious and bottoms-up initiative that would see the integration of its production and business processes in such a way as to give the company a fully-integrated management system. The chosen solutions were an ERP system specifically designed to handle continuous processes as well as Wonderware’s FactorySuite that includes InTouch for process control and InBatch for batch management and the IndustrialSQL Server real-time historian. The Illuminator web portal and Crystal would be used for reporting purposes. These applications are all integrated with one another as well as with existing applications such as LIMS (Laboratory Information Management System) through the MIMS (Manufacturing Information Management System). Five years later, ArchestrA becomes a reality to help WPR add and integrate PLC’s with the total solution to provide a truly integrated “sensor – to – boardroom” management system. CSense for Wonderware would be added in future to increase the effectiveness of processes through more effective and intelligent troubleshooting.

‘The ArchestrA project was initiated in order to help WPR with this programme as well as to reduce costs and to improve the quality of the product we deliver to the open market,’ says Dries van der Lith, Lonmin WPR IT manager. WPR’s goals included:

- **Increased first pass efficiency:** This involves the chemical dissolution of the concentrate supplied by the mine.
- **Standardised process control:** In order to consistently and predictably deliver quality products, processes need to be standardised and strictly controlled.
- **Data captured electronically rather than manually:** This would help eliminate errors and provide the completeness required for informative management reports.

Company Overview

Western Platinum Refinery - Springs, South Africa
Western Platinum Refinery (WPR), a division of Lonmin Platinum and currently the third largest refinery in Southern Africa, has been refining precious metals since 1974. It was the first refinery in SA and the second worldwide to receive ISO 14001 certification for maintaining the required level of environmental management standards in the platinum industry. WPR was also awarded OHSAS 18001 Occupational Health and Safety certification. In addition, WPR has received ISO 9001:2000 certification for the maintenance of international quality standards. In this tradition of leadership, WPR continues to consolidate its sensor to boardroom approach to improve its operational and business processes.

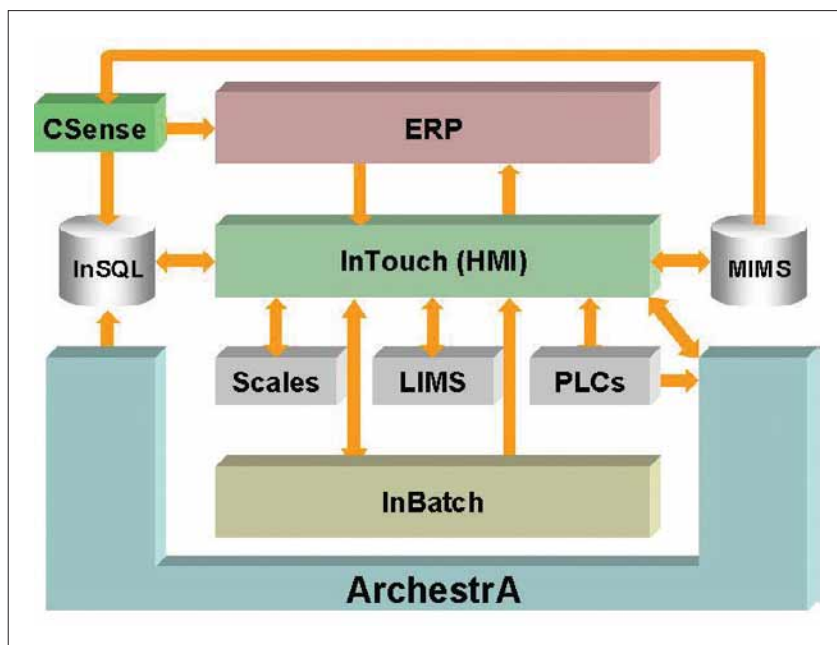


Figure 1: Application interactions

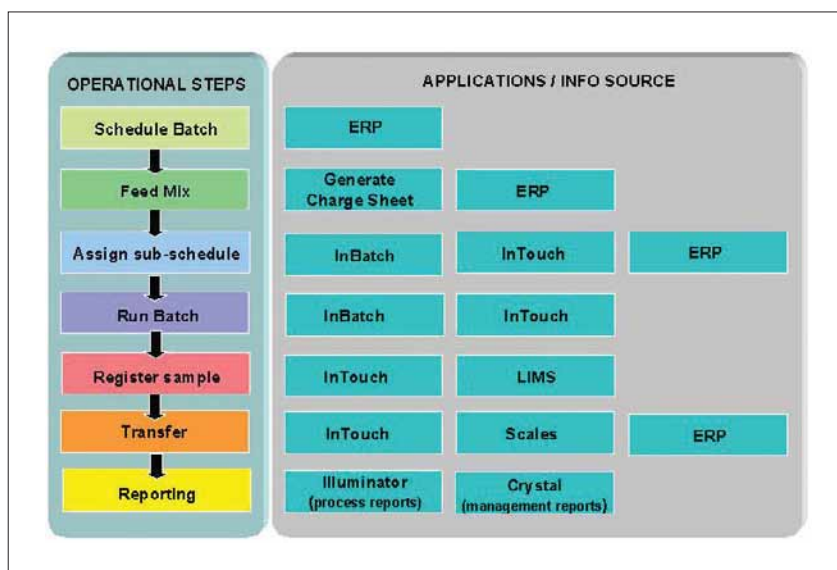


Figure 2: The application involved in supporting the process

- **Improved managerial and process reports:** In this way, tighter control could be gained over the production processes while management would have the necessary and timely decision-support information it needed.
- **Real-time metal inventory:** Due to the very high value of the processed metals, it is extremely important to know at all times where every gram is located for metal accounting purposes.
- **Enhanced real-time troubleshooting:** The nature of the processes demand instant and accurate diagnosis of malfunctions.
- **To integrate all relevant systems:** WPR has many separate and disparate systems that must work

together in harmony - one of the reasons for the choice of Arcestra.

- **Enhance processes:** This not only included more efficient and effective production processes but also those processes that included the work force.
- **Maintain user security:** This includes the physical security of the precious metals themselves as well as maintaining the integrity of processes that are each under the control of their assigned operators. No operator is allowed to interfere with the process of another operator.
- **Maintain an audit trail:** Once again, due to the high value of the processes in question, it is vital to know where responsibilities lie and who was responsible for which actions and/or decisions as well as who was responsible for authorising them.
- **Single point of user access:** Although many different applications are running concurrently in the plant, users should be able to access all the information they need from their workstations (e.g. batch, information, SCADA/HMI information, etc.)
- **Develop a complete solution within budget:** Rather than being open-ended, this project was to be completed within strict budget limits.

'One of the reasons we chose Wonderware is that it had become a Lonmin standard,' says van der Lith.

'Another reason is the wide acceptance of Wonderware solutions in SA and worldwide in many different applications as well as the integration capabilities of Arcestra.'

'Any installation such as this, which involves extensive automation, needs careful handling of the human as well as the technology aspects,' says van der Lith. 'Extensive operator training and management involvement is essential as is the formal definition of the production processes. Over the years, processes evolve with everyone involved adding their own intellectual property to them. So, processes had to be standardised while intellectual property was captured for use in the

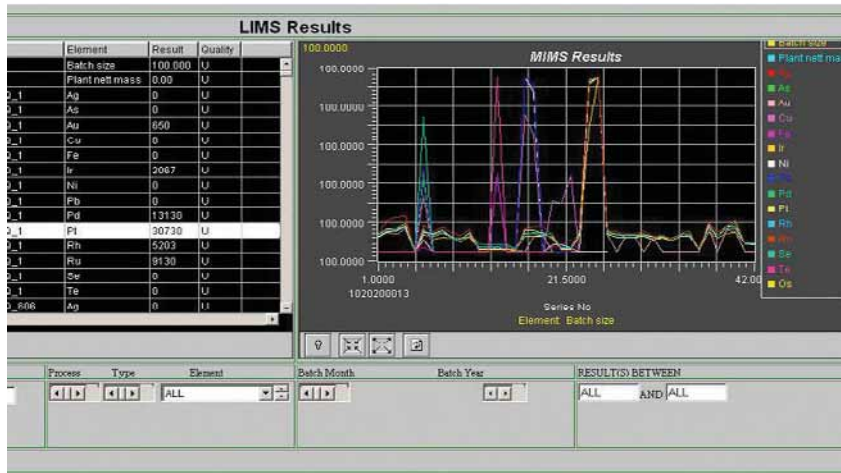


Figure 3: sample of a Laboratory Management System report Information

InBatch batch management system. Another requirement is a close working relationship between IT and the instrumentation department and, thankfully we have that. Lastly, we need to commission the new initiatives in a live environment. All this means that effective change management at all levels is a high priority.'

The InBatch, terminal and tag I/O servers are all fully redundant with instant switching to alternative servers in case of a problem.

The project reached finalisation by the end of May 2005 with operating staff trained in the use of the system. 'All the reports have exceeded our expectations,' says van der Lith. 'Management can make better informed decisions based on a clear picture of the processes and relevant, real-time information.'

Future plans include the automation of the pure metals plant, the other precious metals plant (Rhodium, Ruthenium and Iridium), the reduction plant and the tank farms. In addition, processes will be optimised through the use of CSense for Wonderware, which will also help in problem diagnosis. All inventories will eventually be migrated to SAP.