Achieving Operational Excellence
MineRP GeoOperations Dashboard for Oil & Gas

Positioning Paper

MineRP

The problem

The Oil & Gas industry is undergoing substantial changes including increased price volatility, intensifying skills shortages, broadening spectrum of operational environments and political instability in some producer areas.

Technical challenges are diverse, arranging from complex activities such as onshore and deep-water exploration, development and production from conventional & unconventional oil and gas resources etc.

In order to adres current business challenges and remain profitable, companies require on-demand, accurate business information.

MineRP's solution

MineRP provides stakeholders with spatially contextualised business intelligence combining technical information with commercial indicators delivering boardroom control across the full Oil & Gas value chain. This spatial decision support environment is based on real time information in context of time and location.

Amalgamating a variety of production and process control data sets, the MineRP spatial operations management solution combines drill-in drill-out capabilities with 2D and 3D location awareness. Seamless inter-disciplinary collaboration is further enabled through workflow for timeous execution of corrective and preventative actions.

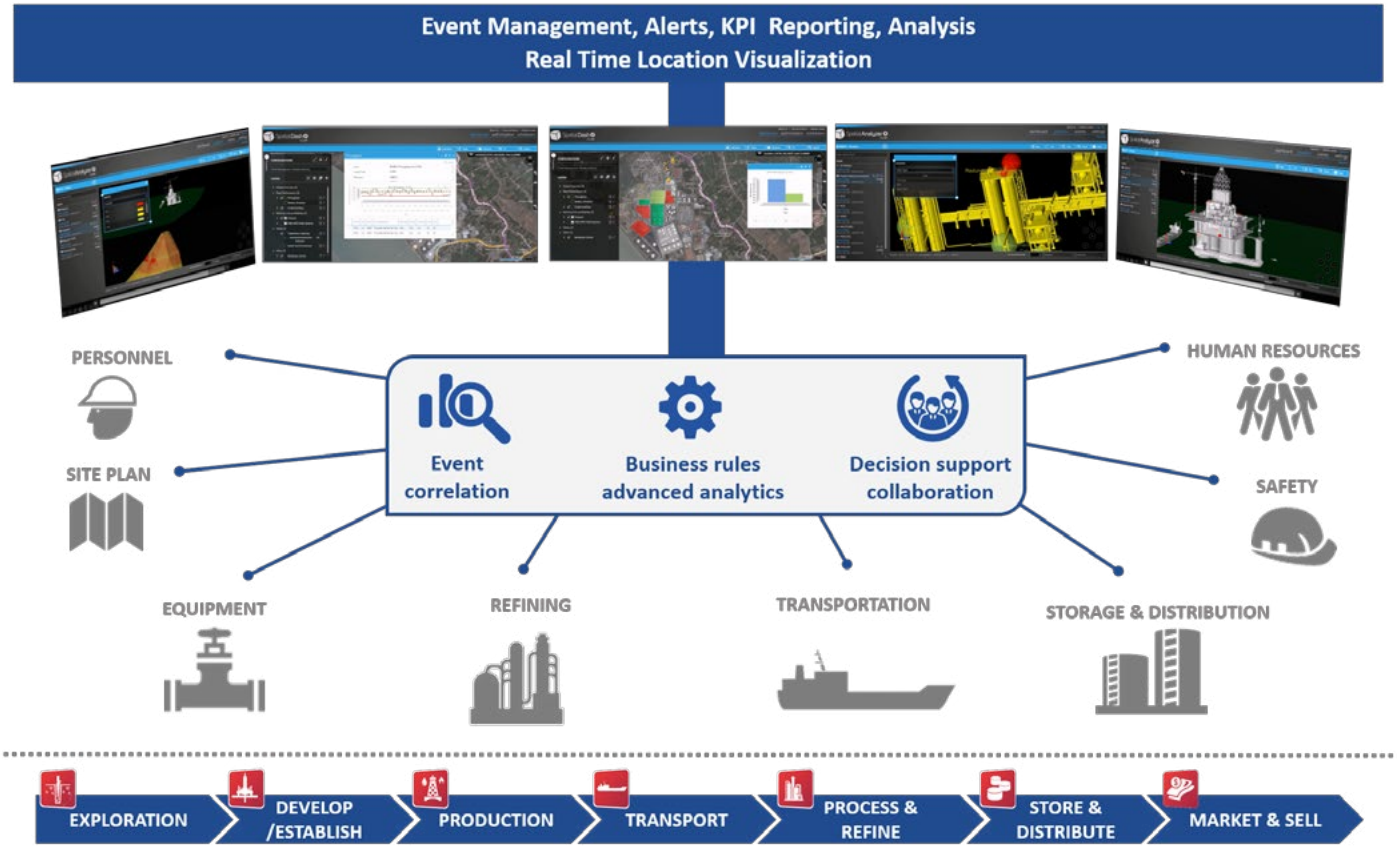


Fig 1. The MineRP spatial business intelligence with boardroom control

Solution overview

Operational Excellence is defined as the capability to execute a business strategy consistently, reliably, and better than the competition.

Sustaining Operational Excellence requires:[1]

- World class safety, health and environmental (SHE) performance
- Top-quartile performance and return on capital
- Best in class standards and systems
- A high performance culture
- Distinctive core capabilities
- An immaculate reputation

Supporting and enabling Operational Excellence requires information from all of the major value chain processes reflected in Figure 2 below.

The typical oil & gas value chain, consisting of Upstream, Midstream and Downstream activities, crosses many domains and involves many role players all creating data using a variety of typically disconnected systems.

> "Spatially visualize all your operational data with MineRP GeoOperations Dashboard"

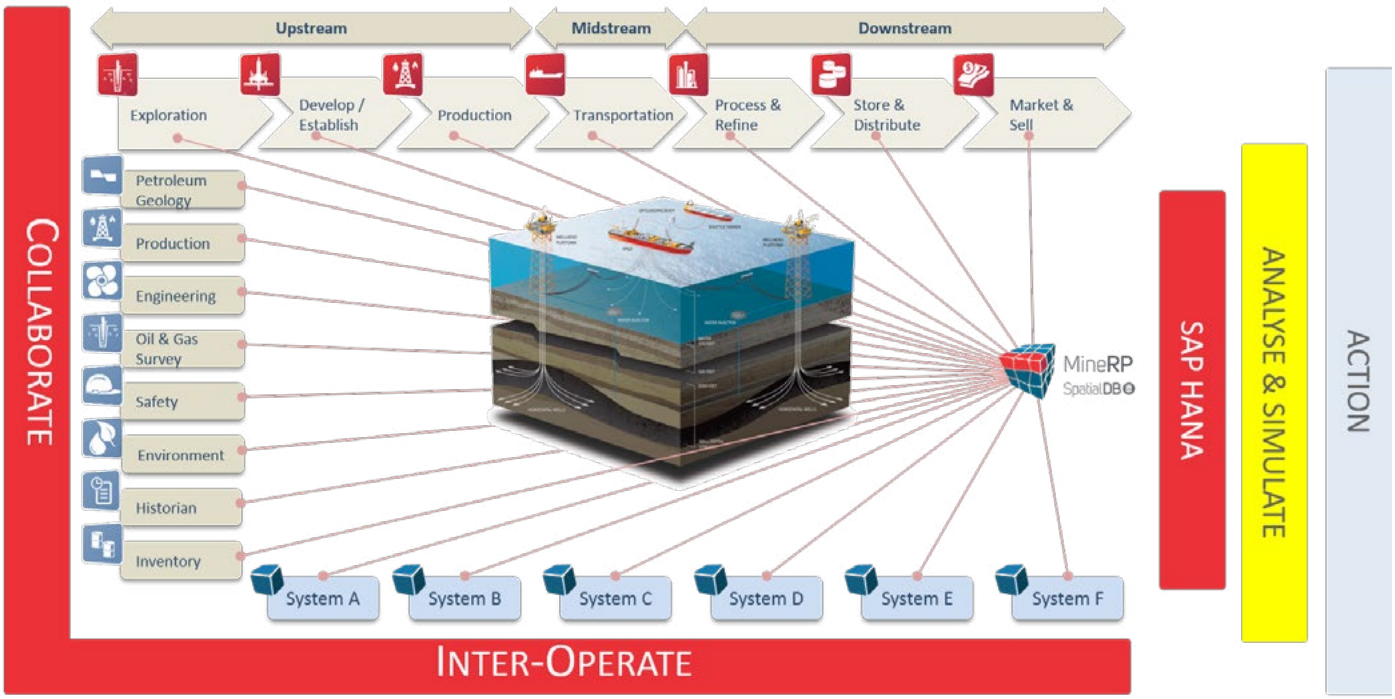


Fig 2. The MineRP Oil & Gas solution spatially integrates technical disciplines

[1] *McCreery,J. , Phillips,E. , Cigala,F. 2013, Operational excellence: The imperative for oil and gas companies. Bain & Company.*

Solution insights

Spatial Integration

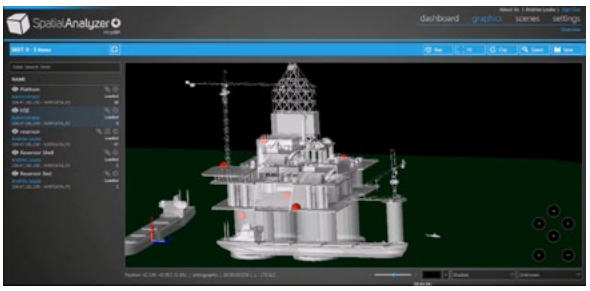
The MineRP GeoOperations Dashboard solution utilises MineRP's spatial integration platform with at its core SpatialDB, a spatially-referenced, standards-based, mining technical database, and combines information from source applications such as:

- Technical systems including supervisory control systems, MES historians and operations management applications;
- In-memory databases such as SAP HANA, IBM DB2 with Blue Acceleration and Microsoft SQL Server 2014 and
- ERP systems such as SAP, ORACLE, SAGE and IFS

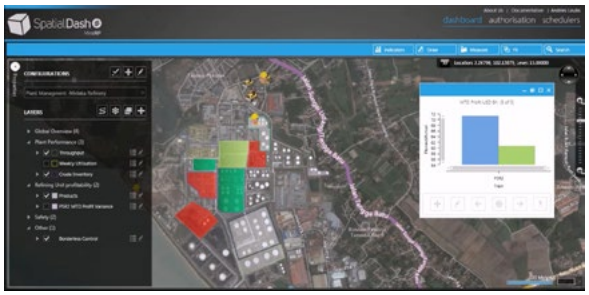
MineRP's GeoOperations dashboard reporting and analysis solutions have been used with great success in a number of mining organisations. Now applied to oil & gas, our solutions provide exceptionally portable, highly customizable and spatially integrated reporting capabilities, which allow for site, portfolio or group level spatial perspectives. Compatible with most mobile and web based platforms, online information is available anywhere, on-demand.

MineRP's GeoOperations dashboard facilitate continuous monitoring and control of key production indicators, and allows (among other features):

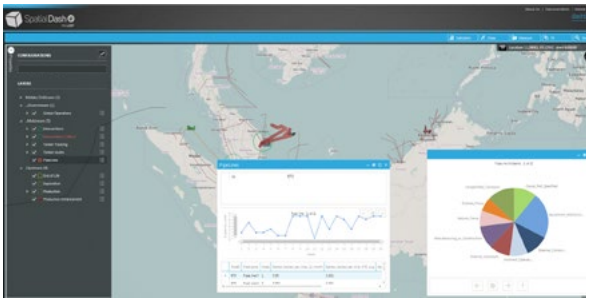
- Web-based planned vs actual reporting
- Real time reporting and analysis of 3D operational data from multiple sources
- Role-based operational and executive reporting dashboards, on a need to know basis, with built-in workflow
- User definable hot-spot analysis



Running on SpatialDB, SpatialAnalyzer supports a full 3D environment and allows for analysis, visualization and animation of spatially integrated planning and production data.



SpatialDash provides a platform for interactive spatial reporting and workflow, and enables role-base review and annotations of operational information.



Pipeline and production metrics visualized using MineRP SpatialDash.

The spatial integration capability has been enhanced by partners like HCL. Partners embed the integration capability into platforms and solutions providing proactive operational insight through real time connectivity. The MineRP platform further enables connectivity with, and integration of data from plant floor sensors, real time location systems, data historians and other real time operational systems.

In addition to integrated reporting capabilities, MineRP allows for the spatial visualization of data, thereby extending descriptive analysis beyond traditional business intelligence and dashboards.

Moreover, the MineRP platform facilitates further analysis of the integrated dataset as well as the application thereof in ERP systems such as SAP. All this is done while maintaining the spatial orientation and integrity of the source data. This means that information analysed in BI tools can now also be visualised spatially against operational backdrops such as pipeline, plant or refinery layouts.

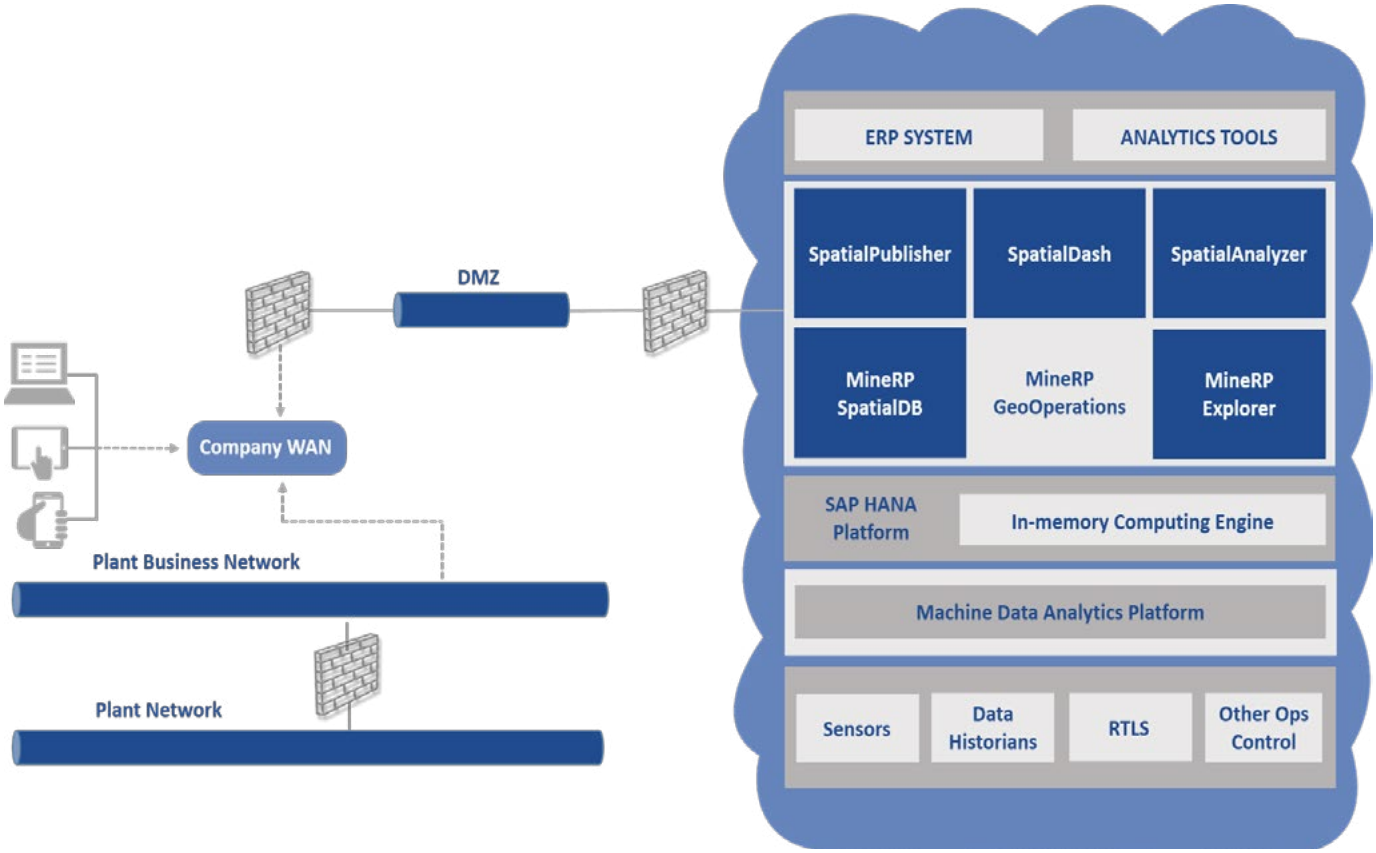


Fig 3 High level HCL System Architecture

Integrated Workflow

More than mere spatial dashboard reporting, MineRP solution is extended through workflow, enabled at any level and at any point. This implies that stakeholders are able to kick off workflow processes either manually from the dashboard, or through rules-driven automated triggers.

The workflow allows:

- Delegation of work, improving accountability and driving adherence to policies, standards and procedures
- Tracking of action plans & deadlines
- Escalation management
- Integrating systems to achieve full monitoring of business performance
- Business users to automate, execute and monitor (new) business processes.

The workflow capability enhances speed of inter-discipline communication, thereby improving safety and efficiency and reducing costs.

Solution Benefits

Implementing MineRP's GeoOperation Solution for Oil & Gas allows you to:

- Improve speed & confidence of decision making; as it will facilitate better and quicker business decisions by visually relating and analysing technical information from a variety of sources and disciplines

- Provide accurate KPI reporting and forecasting of trends using any source system; giving you full visibility in a logical, spatially orientated, context.

- Optimise your entire value chain from exploration to final distribution.

MineRP's Spatial Dashboards for Oil and Gas supports operational excellence and increases collaboration and accurate decision making.

MineRP GeoOperation Dashboard

Positioning Paper

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