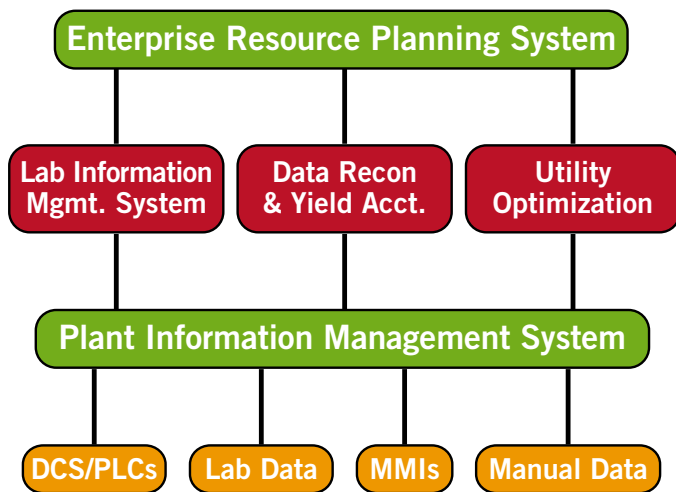


CSE Systems & Engineering Ltd (CSE) offers a variety of industrial systems integration services tailored for clients that maintain and operate process plants. These solutions include Plant Information Management Systems (PIMS), Laboratory Information Management Systems (LIMS), Utility Optimization Systems plus Data Reconciliation & Yield Accounting Systems.

These solutions implemented by CSE serve a wide spectrum of process industries such as the Petrochemical, Chemical, Pharmaceutical, Food & Beverage, Environmental, Materials Testing, Forensic and Power Utilities amongst others.



## Plant Information Management Systems

Plant history is a valuable corporate asset. The heart of a Plant Information Management System lies in its ability to capture and store thousands of data points related to the process plant. Without a Plant Information System it is virtually impossible to recreate a plant's history for future analysis.

Plant Information Systems generate data for end-users and software applications quickly and efficiently. Plant Information client applications enable personnel to easily implement plant and corporate initiatives such as process improvement, TQC, and predictive maintenance by unifying plant data into a single

repository where any individual in a company can view and analyze the same information. Applications such as production planning, maintenance management, expert systems, LIMS, and optimization/modeling programs can be integrated with Plant Information Systems to bridge the gap between business and real-time production environments.

## Laboratory Information Management Systems

From modifications in regulatory code to shorter product life-cycles due to globalization, corporations involved in process manufacturing increasingly need to respond rapidly to change.

The relentless pursuit of excellence in product quality places enormous challenges on the humble laboratory. The purchasing department requires quality assessments on suppliers. Manufacturing demands rapid testing of raw materials, work-in-progress and finished goods. Technical support needs updated test results to handle customer complaints efficiently. Clients, both internal and external, need timely and accurate information.

Laboratory Information Management Systems (LIMS) allows rapid analysis of test results that enables production to make timely adjustments in order to meet client specifications with minimum giveaway. Distribution needs client-specific COA's to ship products.

Other Benefits of LIMS include:

- Achieve high productivity lab operations
- Interface to the lab's instrumentation
- Integrate with enterprise-wide systems
- Improve lab productivity and management
- Check against multiple specifications
- Distribute client-specific reports
- Access real-time QC data and charts
- Deliver data to your clients
- Maintain comprehensive audit trail
- Schedule and prioritize work



## Data Reconciliation & Yield Accounting Systems

An accurate source of plant data is essential to the profitability of a process plant. It is the basis for yield accounting, long-term planning, LP vector generation, and any other form of analysis. With the increasing use of online computing and distributed control systems, operational data becomes much more accessible. However, this data is commonly imperfect, since it often shows little consistency between different units, reflecting gross metering errors, improperly entered measurements, missing movements and unaccounted losses.

Data reconciliation/yield accounting applications allow your process site to more accurately analyze the quality of flow and inventory measurements and produce a single consistent set of the most accurate reconciled data possible. It allows the process site to manage the measurement system from the top down, to fix measurement problems at their source, and to generate a single set of data for all applications areas. The program tracks the receipt, shipment, processing and storage of raw material through finished products throughout the manufacturing process. The reconciled values are consistent for each receipt and shipment point, and for each process unit and tank. This data is used by accounting, engineering, planning/scheduling, maintenance and management to enhance the profitability of plant operations.

## Utility Optimization Systems

Most major process industries have utilities generation plants which are integrated with the process units. The boilers and gas turbines are fired with the most economical fuel(s) from the process units and in turn they generate steam and electricity required by the process plants. In some cases, surplus electricity is sold to the national grid. Depending on ongoing utilities demand, current equipment constraints, fuel cost, electricity import cost or electricity export price, optimizing the utility plants for a minimum net cost, operation is a continuous and complex task. This involves selecting the right combination of electric and turbine drives, the right level of steam generation from the respective fired equipment and the right level of power generation from the gas turbines and turbo-alternators.





No. 2 Ubi View

Singapore 408556

Tel: (65) 6512 0333

Fax: (65) 6742 9179

Website: [www.cse-global.com](http://www.cse-global.com)