PLEXAL GROUP

# Profile No. 6 | Plant Business Integration | April 2004

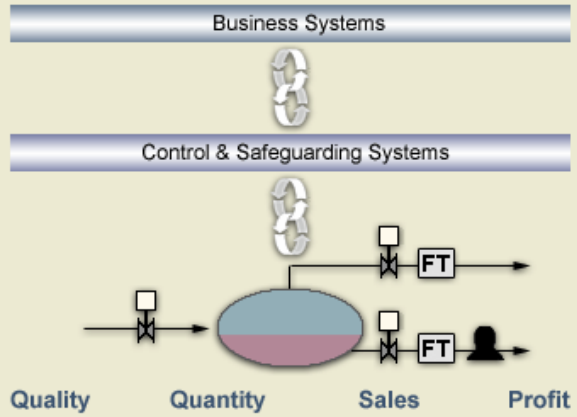
## Introduction

Plexal Group's Plant Business Integration (PBI) starts with the connection of the control system network to the corporate network. The connection facilitates the use of near real-time production data throughout the business for analysis and planning activities and resulting strategic decisions.

The data can be displayed on the corporate intranet in customised displays that are meaningful for each particular stakeholder group.

It can also be electronically imported into analysis tools such as reservoir management databases, corrosion analysis databases, process modelling applications and various calculation tools.

In turn the business can send key data to Operations such as the latest production targets, operating costs, total sales and projected profit.




## Key Considerations

Although reporting can be value adding, the key driver when considering an extension of the control system is the ability to use analysis tools with near real time production data that will identify production gains and/or operating cost reduction opportunities.

– General Manager of Operations:

*"The control system is impressive…what I really want to know is cost per unit while it's happening. (This currently takes up to three months for reconciliation of the relevant information)."*

– General Manager of Treasury:

*"We have significant issues with managing plant overheads – for example power management. I see IT based solutions as a way of addressing this."*

- Asset Manager:

*"I don't care about the technology – I just want to know how my plant is performing."*

– Projects Co-ordinator:

*"The initial business case wouldn't support upgrading the metering skid. After reconciling the business and production figures, we identified a $0.6M loss due to poor custody transfer."*

Operations can readily make informed decisions on production due to ease of access to real time production data.

In line with their primary role, the decisions are normally short term with little strategic intent - such as starting a standby system due to failure of the duty system.

Medium to long term decisions are usually strategic and driven by variables outside day to day operations (such as spot sale prices, market competition, long term sales contracts, feedstock prices and fluctuations in operating costs).

Different stakeholders require information in different formats for analysis and decision making. Plant Business Integration can assist with improving the quality and timing of these strategic decisions.

For example: power consumption is a classic operating overhead that varies both in tariff cost and amount each day. Effective power management can improve the bottom line. In some cases, running equipment continuously at 100% output is not as profitable as varying the output to time sensitive inputs.

A simple example of power management could include:

- Analysis of each major process unit:
  - Performance curves, both theoretical and actual.
  - Weather and time of day.
  - Upstream and downstream variations in flow paths.
  - Production output in dollar terms versus performance curves.
- Power tariffs for day, night and weekends.

By using high volume flow paths during low tariff periods (such as night-time) and lower volume flow paths during the day, the overall cost/unit to produce or transfer is reduced without adverse affect to the total volume in a given period.

## Application and Risks of PBI

Business values accurate production reporting. Automated reporting direct from the control system to each designated group via the intranet can deliver long term benefits.

Most organisations recognise the inherent value of this reporting, and although sometimes difficult, tangible justifications can be demonstrated. Process optimisation and overhead reduction can strengthen the case.

Listed below are some typical areas of opportunity:

- Semi-automated plant and field mass balance calculations.
- Load sharing across the plant/field as suppliers and users move in and out of the grid.
- Custody transfer and validation.
- Reservoir management.
- Electricity and Fuel Gas management.
- Chemical Injection management.
- Reduced reporting effort.

However, the potential benefits do not come without risk. Many businesses have implemented these types of systems with mixed results.

As with other IT projects, PBI can be susceptible to technology being installed for technology's sake and project cost overruns due to poorly defined boundaries, validation hold-points and end-user requirements.

Acceptance and effective use of the system is an important performance indicator for the project. An appropriate level of change management is a key element in the execution strategy to achieve the goal of endorsement by the business.

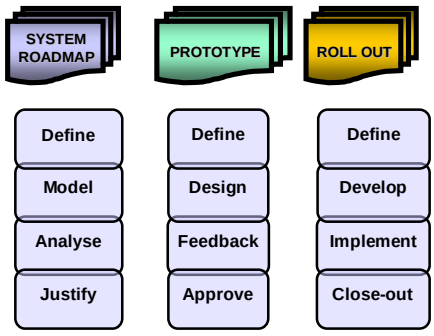
Another key risk is the increased exposure of the control system network to external attack such as a virus via the corporate WAN and internet connection. Any new PBI system must consider network security in the design. For more information refer to Profile No. 7.

## Our Difference

Plexal Group has worked extensively with various engineering groups, levels of management and operations. Our methodology requires us to work with the stakeholders, develop the execution plan, basis of design and scope of work that captures the real business requirements and expectations.

We understand the risks and mitigate them through:

- Key team members (including some owners of Plexal Group) are specifically assembled for this type of work. The team can include Operations, Process, Mechanical and I&C System Engineers, Software Developers experienced with corporate applications and Business Analysts.
- A robust methodology.
- A focus on the business outcome.
- Modularised deployment of the full scope with checkpoints after each module.
- Phased implementation of each module with prototypes, verification and validation hold-points.




Development and Deployment Methodology

## Our Services

Plexal Group can provide part of or full turnkey service for PBI implementation. It can include:

- Opportunity assessments & system roadmaps.
- Development of robust business cases.
- Conceptual, front-end & detailed engineering.
- Control system network and configuration.
- PBI engine configuration.
- Intranet web pages and reports.
- Import utilities to 3rd party corporate applications.
- Specific analysis and calculation tools.
- PCS security.
- Phased module deployment.
- Support (See Profile No. 8)

## In summary

Plexal Group's objective when deploying a PBI System is a cost effective, low risk and robust system that delivers the essential business production information and analysis requirements.