

INDUSTRY APPLICATION

Hydrocarbon processing industry

Invensys®

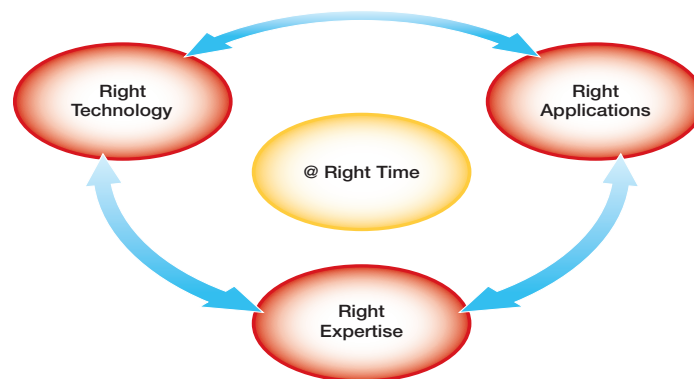
Invensys Process Systems Improves Profitability in the Hydrocarbon Processing Industry

INFUSION™
Enterprise Control System

AVANTIS • FOXBORO • SIMSCI-ESSCOR • TRICONEX • WONDERWARE

BENEFITS

- ▶ Better Bottom-line Results
- ▶ License to Operate
- ▶ Operational excellence
- ▶ “Excelerate” enterprise excellence
- ▶ Integrate the technologies, expertise and applications



The InFusion™ ECS is the world's first Enterprise Control System – allowing the use of ALL of today's leading process automation and information systems together, regardless of supplier or generation, as one united business environment. The InFusion ECS fosters a collaborative environment by making the plant visible to the enterprise and the enterprise visible to the plant, dramatically increasing plant and business operational agility. And, by facilitating the transformation of data to information to knowledge to wisdom to action, the InFusion ECS accelerates decision-making while enhancing the ability to detect and effectively respond to unanticipated problems. Significant productivity improvements can be realized because the InFusion ECS offers a single environment for all configuration and application development.

The InFusion ECS delivers:

- Increased visibility between plant and enterprise
- Integration that is both unprecedented and affordable
- Incomparable productivity
- An intelligent foundation for business optimization

In addition to unprecedented integration with disparate systems, the InFusion ECS also brings together the world-class technologies and know-how of the industry's leading solutions, including Foxboro, Triconex, SimSci-Esscor, Avantis and Wonderware. It unites them in a single business environment that links the plant floor with the executive suite.

THE CHALLENGES

The Hydrocarbon Processing (HPI) industry is both complex and opportunistic at the same time. Plants are driven by the absolute requirement to maintain their licenses to operate, as well as to achieve operational excellence and accelerate enterprise excellence. These three simple objectives are highly interdependent while being viewed by most manufacturing organizations as separate issues, primarily because of internal organizational boundaries and perceptions.

When this collaboration requirement is expanded across multiple sites, there are even more significant management challenges, where individual plant personnel have data but they certainly do not have sufficient information let alone enough knowledge and wisdom.

If an organization has been able to at least neutralize all of the above, they are hit with the absolute irrefutable challenge of how to keep qualified personnel productive, from the most basic field operator level to the most senior process engineer who are charged with optimizing the units or plants and even the enterprise's performance.

Production management deals with processing units capacity, downturns, catalyst issues and the trade off costs of operations, maintenance, reliability and the ever present environmental challenges facing operations every hour, minute and second. Combine this with the challenge to adapt a schedule to real-time changes in managing crude or feedstock purchases to minimize purchase costs.

That is on the HPI supply side. The demand management side, especially in refineries, has a challenge to effectively optimize fuel blends. In addition, it can be difficult to reliably eliminate blend reworks. All of this must be done in the most economical manner possible. This is especially true in the facility's energy management function that is challenged with effectively measuring and reducing energy costs while reliably producing and distributing energy.

Cost and plant availability again become real time trade offs for the facility's maintenance and operations management who have to effectively decide between maintenance and operations priorities.

This all comes with the absolute necessity of meeting regulations around safety and governmental regulations. The quality management function in refineries and polymers facilities has a challenge to effectively manage product qualities and reliably implement quality procedures. Finally, the critical situation management function has a challenge to effectively manage critical situations (quality, availability) and reliably implement critical situation procedures.

THE SOLUTION

Invensys Process Systems provides clients with the most comprehensive and broad set of solutions that can be executed in very simple and safe steps at whatever pace the client would choose based upon affordability and financial returns. Driving this capability is the underlying environment created by the new InFusion set of technologies. When this is combined with Invensys's unparalleled suite of performance enhancing applications and industry leading expertise clients are assured of industry leading solutions driving higher performance and margins within a safe and environmental envelope.

This provides internal collaboration for workers inside each facility and across facilities, and provides external collaboration for managers when outsourced professionals and supply chain organizations are coordinated.

The InFusion ECS structures information about equipment, applications and business into objects which are available throughout the enterprise for use by applications driving production management or for real-time decision-making. With the complex operating scenarios prevalent today, instant accurate knowledge is an absolute requirement. The InFusion ECS-based solution does this by governing and tracking collaboration. Based on this collaboration, the InFusion ECS-based solution calculates forecast trends and produces alarms based on shifts in trends.

To improve performance management, InFusion ECS-based solutions convert requirements from the business and actual operating performance from the facilities into real-time advice at every level of the organization. The InFusion ECS includes a patented Dynamic Performance Measures application that can transform refinery and other plant cultures with real-time financials.

Invensys has a broad suite of proven solutions from Production Management through Demand Management to Critical Situation Management. Most importantly, all of these solution sets act in absolute concert, providing the client with a seamless approach to Integrated HPI Operation and Enterprise Excellence. Specifically, production management InFusion solutions provide accurate real-time planning and movements tracking integrated with business and operations real time performance information and knowledge.

With the performance requirements set for feedstock management, InFusion solutions provide real-time quality measurement and adaptive optimization allowing refiners to blend crudes earlier and to target qualities which minimizes refinery disruption and helps to reduce feedstock costs. For demand management side, InFusion solutions provide intelligent real-time blend optimization once again tightly coupled with the business and performance requirements from corporate and/or local facilities.

With performance and supply and demand requirements addressed, the challenge continues to be to operate the facilities in a safe and environment manner. Combine this with energy management InFusion solutions that provide real-time turbomachinery and steam distribution optimization coupled to business requirements and plant performance, plant margins are continually improved.

For quality management, InFusion solutions provide intelligent real-time inventory and performance management which helps refiners to handle sulfur, yield and giveaway challenges earlier and better as prime examples. Finally critical situation management InFusion solutions helps facilities to significantly reduce nuisance trips and to better handle all critical situations — from quality to abnormal situations. Combining intelligent real-time asset management coupled with business and performance requirements from the facilities with robust and accurate Invensys applications and the adaptation of maintain vs. operate decisions enables refiners and chemical facilities to improve maintenance performance and cooperation between departments.

ECONOMIC BENEFITS

The effective collaboration within a facility, across a fleet of facilities and within portions of supply chains has significant economic benefits. Downtime reduction can be improved by 10 to 25 percent. Labor productivity, especially in maintenance, can be improved by 20 to 30 Percent. MRO inventories can be reduced by 25 to 35 percent. Energy consumption can be reduced by as much as 10 percent. A world-scale ethylene plant reduced nuisance trips from 24 per year to one in four years, with an estimated savings of over \$200,000,000 over four years.

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