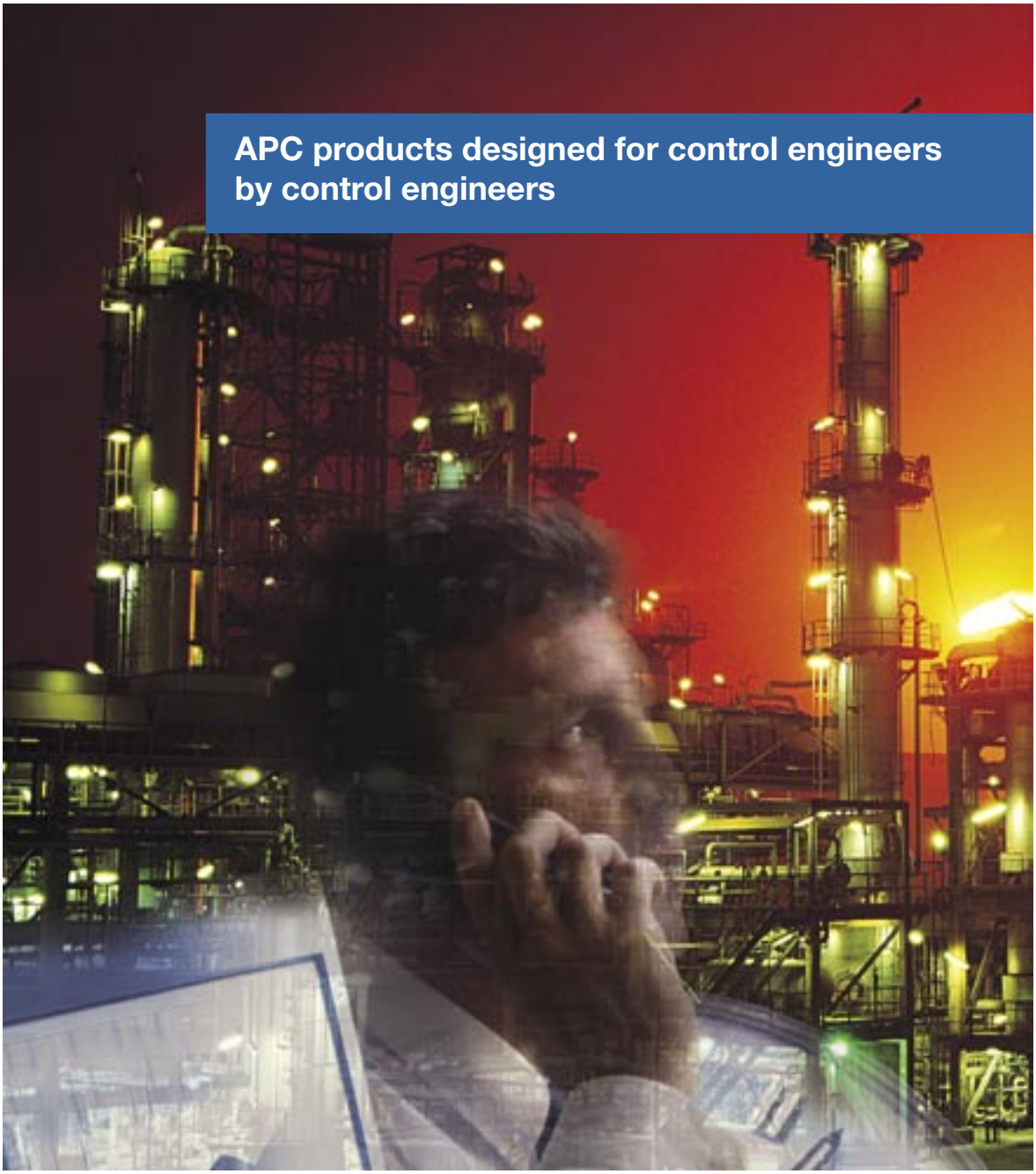
Industrial^{IT} Solutions for Advanced Process Control and Optimization

Creating value through integrated solutions



A complete integrated solution for your control and optimization problem

ABB's Industrial^{IT} Advanced Process Control suite: designed by control engineers for control engineers

ABB's application engineers have faced and tamed every possible control problem. Working side-by-side with control room operators, since 1980 they have implemented advanced process control and optimization using applications and products from around the world.

The practical experience is backed by ABB's R&D into control theory, information technology, mathematics and statistics. The result is a set of world-class APC products, fully integrated in a unique suite, able to effectively face every advanced application from small-scale single-unit plant to large-scale multi-unit facility.

ABB's Industrial IT APC suite brings about major improvements in the performance of your business. Our software tools deliver the most effective and advanced solutions for any process problem. Our APC and optimization solutions simplify commissioning and maintenance, and then drive your process towards its economical optimum with:

- Increased throughput
- Minimal quality giveaway
- Increased profitability
- Enforcement of safety and environmental operating constraints
- Less energy consumption
- Improved efficiency
- Increase product quality
- More complete information about the process at every level of your enterprise

Services

ABB has operating units world-wide: nobody else provides such a complete network of skilled engineers for APC and optimization services. What does that mean for you? No more waiting for weeks to adjust your control configurations or for basic troubleshooting. No more language barriers between your control room crew and APC experts.

ABB continues to provide support once plants are operating, because our target is to create a continuous partnership exchanging knowledge and benefits for both parts.

An Integrated Solution

ABB is the only provider who builds integrated solutions that enhance your return-on-investment. We combine the ability to deliver APC with the systems integration capability to install DCS, safety systems and turnkey analytical solutions.

Our automation systems aren't tool kits but full-fledged, robust, flexible, "plug and produce" applications. Each system interfaces with the others and integrates with existing and future plant systems. Whether you're building a new plant or upgrading your current facility, our solutions meet your needs today and grow with your future needs.

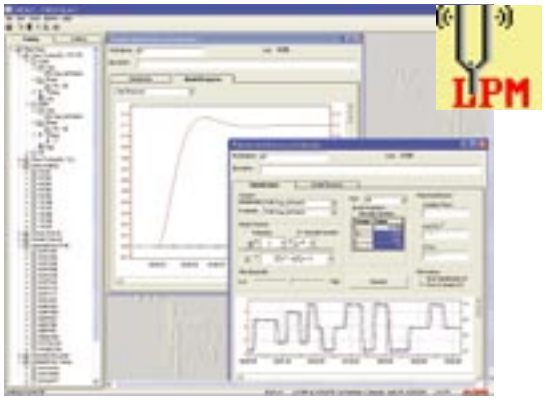
ABB APC products offer multitasking, multi-language support, graphical operator interfaces, flexible connectivity, fast installation and easy diagnostics and programming. The APC suite is based on a set of common components, which give the packages a common look and feel and provide a familiar interface for the engineer or operator.

ABB is providing a set of programs that are designed to work together to provide the end user with a complete solution. They cover the requirements of most on-line advanced control applications that you will encounter in your plant. ABB's advanced solutions products encompass:

- **Loop Performance Monitor** – base automation advanced Loop Tuning and Performance Auditing
- **Predict & Control** – Multivariable Predictive Control
- **Inferential Model Platform** – combining Neural Networks, statistical regressions, SPC and MvSPC.
- **Data Manager** – high definition data collection, visualization and processing

Connectivity through OPC standards make all the products able to effectively operate and dialogue with any commercial DCS.

Optimize^{IT} Loop Performance Manager



Improved PID controller tuning can result in reduced quality variation, reduced scrap and reduced downtime. The ability to maintain PID loops at their optimal operating conditions translates into manufacturing cost savings and higher productivity.

Loop Performance Manager (LPM) provides two main components for process improvement, a loop Tuning tool and a loop Auditing tool. The loop-tuning tool is used to improve control loop performance, while the auditing tool is used to monitor loops to ensure that performance does not degrade. Any industrial plant can benefit from Loop Performance Manager, which can be implemented without a large capital investment in equipment.

Optimize^{IT} Data Manager

Data Manager is a powerful software package for data collection (both real-time and historical), trending, data processing and evaluation.

The package has been designed to allow actual plug-and-play connectivity to a multiplicity of platforms. Once acquired, high-definition, uncompressed data can be quickly trended and processed to unveil hidden, essential information about plant operation.

Data Manager has been designed to be the kind of "magnifying lens" every process engineer needs to properly take care of the assets he/she is responsible for.

Optimize^{IT} Inferential Modeling Platform

Inferential Modeling Platform (IMP) is a software package designed and developed to allow a straightforward and efficient "distillation" of process data into real insight, valuable production information.

IMP is structured in two environments: a Model Builder, able to import, analyze and filter process data, which are then used to build models that can be thoroughly assessed thanks to a wealth of utilities. Once the models are validated they can be deployed in the control room thanks to the Run-time Server, a unique on-line platform that allows configuring, executing and monitoring real-time applications within minutes.

Additionally, IMP allows implementation of Multivariate Statistical Process Control strategies and SPC Charts.

Optimize^{IT} Predict & Control

Predict & Control (P&C) is a not just one more Model Predictive Control (MPC) algorithm to be released for sale. It is based on new technology that reworks the modeling architecture to replace the typical MPC collection of SISO models with a true MIMO state space model.

This is made possible through a new model identification algorithm for state space models. With the state space model, we can predict the effect of disturbances with far better accuracy.

P&C merges a solid control algorithm with vastly superior modeling technology to deliver overall better performance. The state space model also gives freedom to the engineer to specify the model structure and to define "extra" or auxiliary process variables that are used to further improve disturbance estimates.

Every product we build delivers:

- Reliability in the all demanding applications
- Ease of use and maintenance
- Scalability, expandability and platform independence
- Seamless integration with existing systems
- Up-to-date and accurate information
- Protection of current and future assets

Go step by step

Optimize IT product suite allows you an unmatched flexibility in implementing advanced control strategy in your plant!

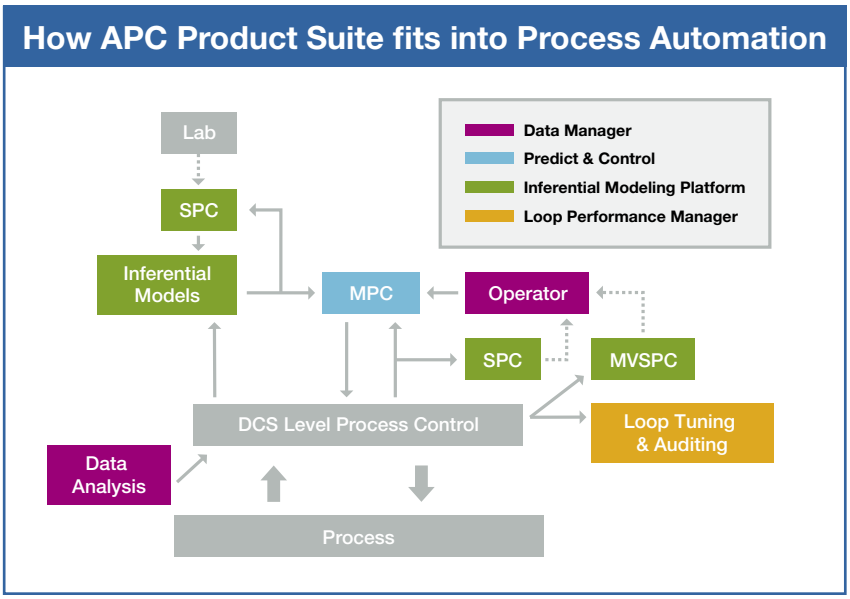
Start with fixing your basic DCS controllers; monitor how they perform and where there is room for improvement (LPM); add soft sensor to measure on-line what the lab provides 3 hours later and only, say, 4 times a day (IMP). While you are on the way you can just drop predictive emission monitoring to protect yourself against penalties due to non compliancy.

Check if your equipment is delivering what it is supposed to and finally add the latest technology in Model Predictive Control to push each unit against its actual limit and squeeze any single dollar out of your capital investment (P&C).

Typical scope of services:

- Site survey and analysis of existing facilities
- Master plans and ROI estimate
- Base control fine tuning
- Operator and engineer training
- Installation and commissioning
- Post-commissioning services and application maintenance

How APC Product Suite fits into Process Automation



All the products are part of a suite where most of the utilities are common so to maximize easy-of-use for process control engineers.

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