BROCHURE

Automation upgrades
The best route to the right solution
Automation upgrades

As plant lifetimes are pushed out it is not uncommon for a plant or process to have one or two major control and monitoring system upgrades during its life. This is needed to ensure that the plant can benefit from improved functionality and reliability.

The upgrade needs to consider the entire system and the main areas are:

- Control room
- DCS, controllers
- I/O and existing instrumentation

Capabilities
ABB can provide a valuable service throughout the entire automation system upgrade process. The service we offer covers consultancy support and design services providing assistance from the project start, e.g. migration study, through to the on-site support needed for commissioning and decommissioning, plus all the key phases in between.

We typically offer the following:

- Migration study
  ABB can provide experienced control systems consultants and engineers to develop a scope of work; user requirements specification; enquiry package; budget and project plan
- I/O survey
  If during the migration study, it becomes clear that plant records do not accurately reflect the installed base, ABB can provide a survey team to generate the necessary documentation
- Detailed E/I design
  ABB can produce the entire E/I design external to the automation vendors DCS cabinets
- Critical loop survey and enabling work packs
  If a hot cut over is required it is vital that all the control loops are assessed to rank their criticality in the overall plant control scheme. The most critical loops are then reviewed to understand what could be modified during a minor shutdown / plant outage to enable them to be cut over on line
- Pre & cut over procedures and schedule for hot cut over
  Procedures are required for hot cut over to be carried out safely and this starts with careful assessment of the type and complexity of each control loop
- Commissioning and project support
  Commissioning and hot cut over support can be provided by ABB. This may consist of providing personnel to be part of the client team or alternatively, relevant personnel can be supplied to manage and help lead the daily cut over activities depending on client’s requirements

Our experience
Our operational heritage is reflected in the way we implement projects on operating plants, minimising the impact on operational performance. To assist the functional delivery of an automation upgrade project, a wide variety of engineering specialists from within ABB are available to assist the project, where appropriate. Examples are control engineering, alarm management, human factors and process safety / risk assessment, which includes FMEA leaders. ABB have carried out this process for a number of clients and across a number of industry sectors. Please see our reference list for further details.
Methodology
The ‘road map’ above highlights the routes that need to be navigated to get to the upgraded control system.

The optimal upgrade solution and migration path are two key choices that must be made.

The right choice depends on many factors including:
- Cost
- Requirements for consolidation or rationalisation
- The need for improved or advanced control
- The need to improve information management and system integration

If plant availability is a key consideration then the use of hot cut over techniques can allow the plant to continue to run whilst the control system is migrated from the old system to the new.

This can deliver the benefits of an automation project without the need for a plant shutdown.

This process aims to deliver new automation systems and all their associated benefits with:
- No additional plant outage
- No lost production
- No increase in business risk
- Safety built into every step of the process

Where hot cut over is not possible for some plant items or unit; then use of other techniques can be applied to minimise the impact of project activities within planned outage windows.

Benefits
- Upgrades completed safely and successfully
- Risks minimised and controlled
- Obtain the right solution, delivered in the correct way
- Optimum balance of cost, risk and plant availability
- Achieve the benefits of new automation systems now, not the next scheduled shutdown and allows phase implementation in line with business requirements