ABB CAFÉ (Common Adapter for Forward Engineering) Digital Engineering Solution

Design, build and test control systems efficiently and consistently, with high quality as part of ABB Adaptive Execution™

Designing and building control systems is a complicated challenge that presents many risks, whether that project is greenfield or brownfield.

What's needed today is a digital engineering solution that facilitates Modular Automation Design concepts by building a process-unit functional specifications, and then converting it into a control application within a control system, thereby reducing risks caused by inefficient tasks and processes.

ABB CAFÉ is that digital engineering solution for greenfield and brownfield evolution processes used as part of ABB Adaptive Execution™.

Speed & ROI

The challenge of control system engineering for greenfield and brownfield projects

Control system engineering (whether greenfield or brownfield projects) is an excellent opportunity for process industries to improve operational efficiency. Unfortunately, due to the complexities involved, these projects face an increased risk of not meeting objectives.

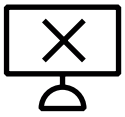
Greenfield
Designing, building and testing new control applications takes considerable engineering resources lacking any focus on long term optimization such as implementation state based control principles. The process is traditionally cumbersome, requires a great deal of manual tasks, takes multiple iterations, and involves significant customization and redundant effort.

Brownfield
Control system migration projects typically take longer than expected and rarely deliver a favorable return on investment. This is why process industries are looking for advanced tools and approaches to improve how they migrate from legacy to modern control systems, while leveraging the latest capabilities to apply modularization and state based control principles.

Key challenges of designing and building control systems

Costs

Manual processes increase engineering time at both design and build stages



Errors

Human errors occur when engineers interpret design data differently

Inefficiency

Data housed in multiple silos makes updates, revisions and reviews cumbersome

Inconsistency

Disparate quality standards and work processes create inconsistent output

Customization

Customizing unique solutions for every project increases initial project costs and long term lifecycle costs

ABB CAFÉ

Design, build and test control systems efficiently and consistently, with high quality

ABB CAFÉ (Common Adapter for Forward Engineering) is a digital engineering solution for automatically reverse-engineering functional specifications from legacy control systems, and forward-engineering functional specifications.

ABB CAFÉ helps process industries (such as chemical, refineries, petrochemicals and pharmaceuticals) eliminate manual tasks, unnecessary customization and inefficient engineering effort. It helps businesses migrate their legacy control systems to modern systems while maximizing the investment they have made in their existing software.

Because ABB CAFÉ is used to design, build and test both migration and greenfield projects, it enables facilities to realize much faster ROI for both.

ABB CAFÉ is uniquely capable of automating and removing many of the steps needed to convert legacy code, creating effective functional specifications, and configuring process automation systems.

Furthermore, as a component of ABB Adaptive Execution,™ an end-to-end solution designed to help energy producers seamlessly solve unexpected project challenges while improving key business metrics, ABB CAFÉ helps enable the methodology for implementing and executing application engineering. Through modular design, standardization, auto-validation and reliable infrastructure, ABB Adaptive Execution™ ensures the delivery team's ability to achieve more in less time.

Features

- Automatically creates a reverse-engineered functional specification from object-based legacy code for brownfield projects
- Automatically generate control application from functional specifications for both greenfield and brownfield projects
- Eliminates many of the steps needed to convert legacy code, create an effective functional specification, and configure process automation systems
- Creates standard, repeatable control system application code for 800xA
- Avoids the need for customization
- Maintains control applications over their lifecycle by providing updated, as-built functional specifications

One tool. Two functions.
ABB CAFÉ provides design and build capabilities

Design

The design function provides a user interface to build the functional specification for each object (such as a process unit or piece of equipment). ABB CAFÉ allows users to import and export the unit-based functional specification from/into the database to support bulk editing and review. The user interface highlights the data required in an offline environment without the 800xA control system connected or expert knowledge of 800xA.

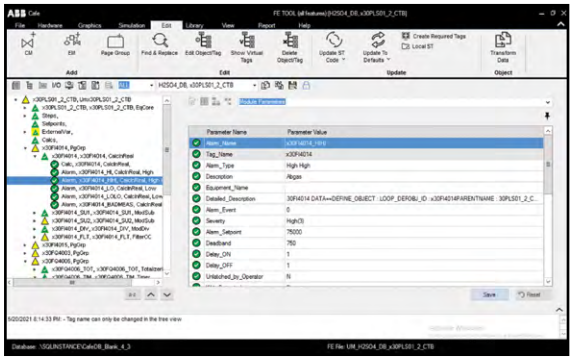
For greenfield projects, users create objects from imported traditional engineering inputs such as I/O lists, the user interface, or existing functional specifications.

For brownfield projects, users create objects from third-party legacy control system source code (such as Honeywell and Siemens).

Build

The build function works with 800xA, an object-based process automation system. The build function converts the object's functional specification to a fully configured object within the 800xA control system (logic, sequences, interlocks, graphics, simulation).

The build function also guides users to update the data needed for first converting, and then importing, into the 800xA system.



Do more with ABB CAFÉ

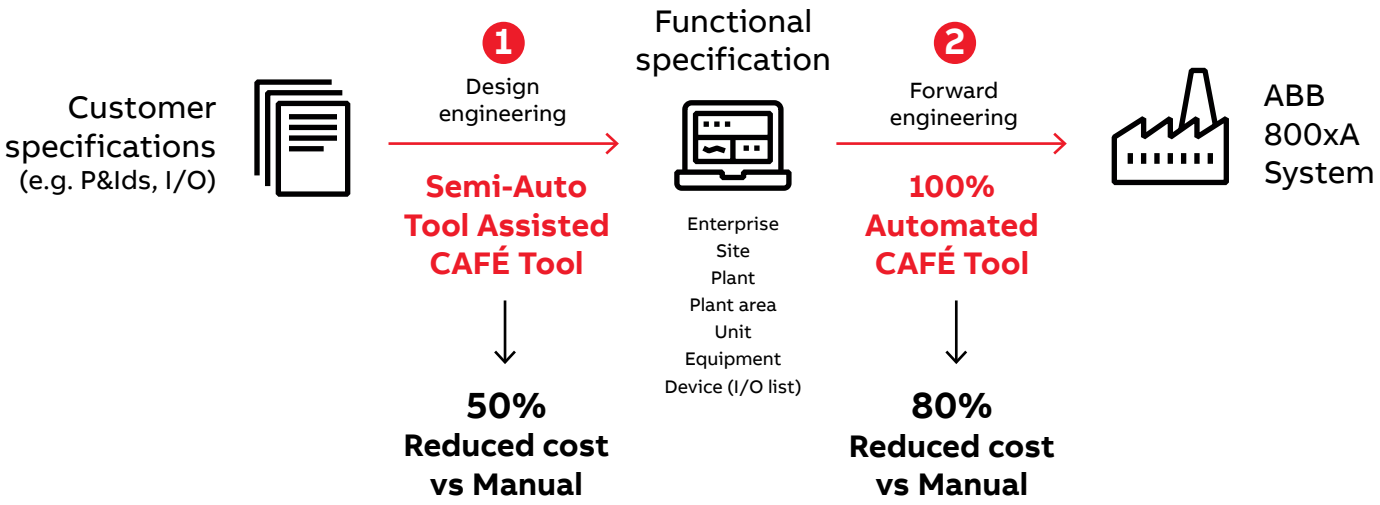
Whether you are migrating a legacy control system or designing a new one, ABB CAFÉ helps you design, build and test control systems efficiently and consistently, with high quality

Design	Build
50% reduced cost in reverse-engineering effort compared with doing things manually	**80% reduced cost** in forward-engineering effort compared with doing things manually

Your Design Process. Automated

1 ABB CAFÉ automates your design process. You design a functional specification (such as a process unit or piece of equipment) in generic standard format. ABB CAFÉ then transforms your functional specification into a DCS application automatically using a modular engineering approach while minimizing error prone user interpretation of traditional design documents such as control narratives.

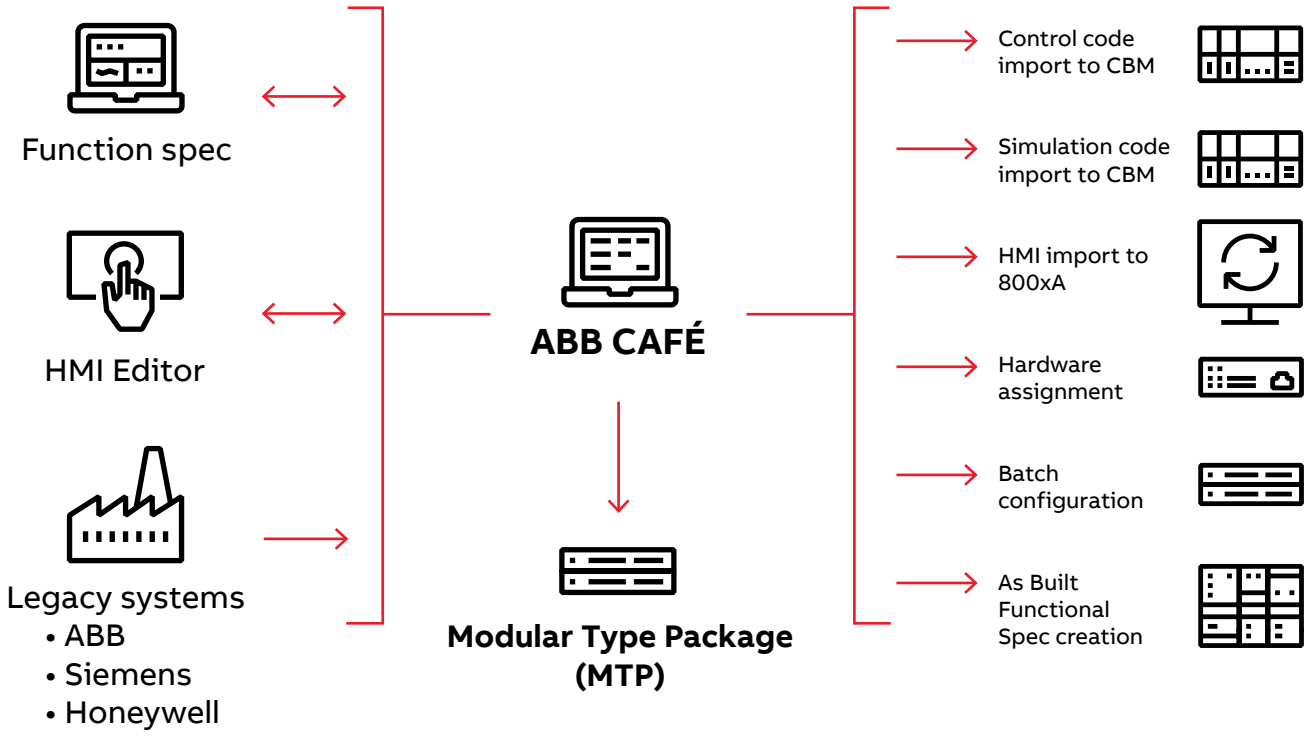
2 ABB CAFÉ uses a procedural automation-based control philosophy to turn functional specifications into control applications in ABB 800xA. This powerful tool creates a reverse-engineered functional specification from object-based legacy code.



One Tool for State-Based Control

ABB CAFÉ covers all the control engineering functions you need for greenfield and brownfield projects using a modular engineering approach: logic (block, sequence, interlocks), graphics, simulation, and hardware.

ABB CAFÉ supports the latest industry-driven approaches, including state-based control (procedural automation) and modular automation.



Benefits

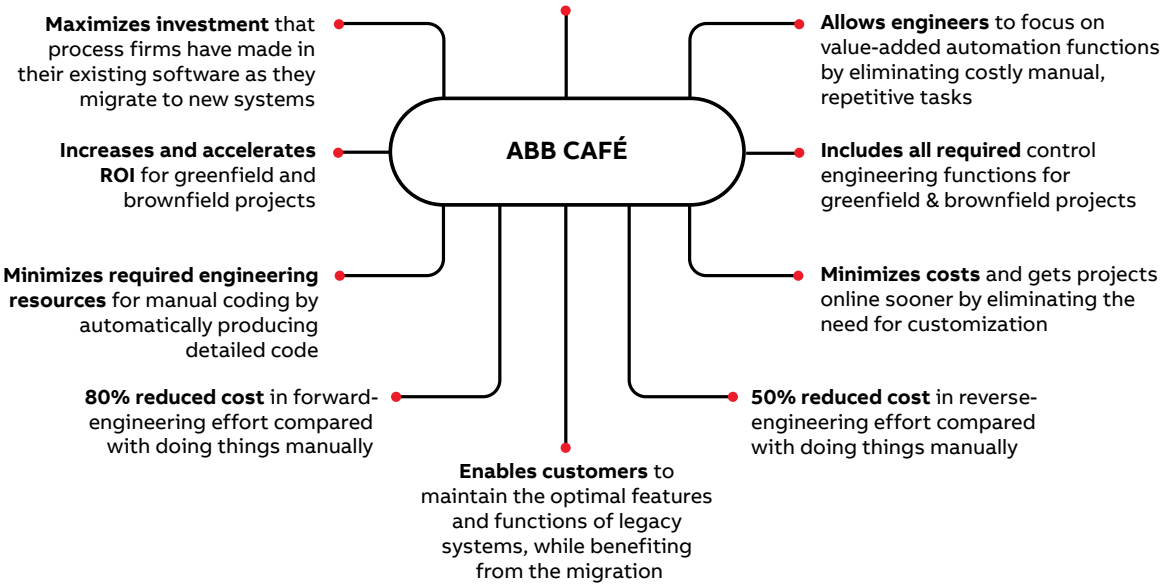


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ABB Adaptive Execution™ brings together the shared learnings, proven expertise and commitment to collaboration you need to see your project through to its successful completion. See how we can make a world of difference for you at **solutions.abb/adaptive-execution.**

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