ABB has extended the DCS Evolution concept to third-party systems, providing the capabilities of System 800xA not only to systems like Provox and TDC3000, but also to DeltaV and Experion, among others. As a further enforcement of its capabilities, the 800xA Simulator will now include simulation support for third-party control systems. End-users can thus enjoy the additional benefits of testing, training and optimizing plant performance in a safe yet realistic environment.

A plant that gradually evolves from one control system to ABB 800xA usually follows this path:

1. Third-party control with old HMI – before evolution start
2. Third-party control with 800xA HMI
3. Third-party control with AC 800M control and 800xA HMI
4. AC 800M control with 800xA HMI

The 800xA Simulator is a ‘Life Cycle Simulator’, i.e. it generates benefits during the complete life cycle of the automation system – from engineering and testing to operator training and process optimization.

Evolution of the HMI and control system is usually carried out in connection with modernization or rebuild of the process. The benefits achieved by using a simulator in such a project are mainly the ability to test and verify changes in the control application as well as in the HMI. This can be regarded as a ‘virtual commissioning’. In addition to the control system benefits, a simulator can be used at an early stage as an engineering simulator for process design purposes.

The 800xA HMI can be commissioned ‘off-line’ in a simulator as it is possible to test and verify that it also works as intended in critical situations not allowed or impractical to test on the real process, e.g. alarm burst handling, alarm management, complex sequences and shutdown logic. Furthermore, it is possible to train operators on the new HMI and control system prior to the start-up and at the same time get their feedback.

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ABB Ability™ System 800xA
Third-party system simulation

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Evolution to the AC 800M controllers is done by programming the control application in the new environment. At this point, known errors are corrected. With the testing that is done in the simulator, errors are detected and corrected before evolution takes place, thereby ensuring a smooth and trouble-free process. This leads to faster start-up and earlier up-to-speed production, which also has a positive effect on quality.

The ABB Evolution concept ensures a safe and cost-efficient path into the future, safeguarding your production assets as well as your investments in hardware, software and knowledge.

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**ABB Ability™ System 800xASimulator**

*Set-up for evolution projects*

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[Diagram of ABB Ability™ System 800xASimulator set-up for evolution projects]