• MOD 300 Evolution Business Driver
• 40 years experience
• Nuclear Industry UK
• Oil & Gas Middle East 15 years
• Engineering & Operations
MOD 300 Installed Base Sites
163 sites on July 24, 2013
Investment Protection

*ABB’s control systems are designed for continuous evolution. It is ABB’s goal to protect our customers’ intellectual investment (i.e. application software) beyond the lifecycles of the underlying platform products (i.e. hardware and software).*

ABB will not "Remove from Active Sale" any product or "family" of products until an equivalent replacement to those products is available. Once a product has been removed from active sale, *ABB will continue to support the product for at least 10 years, although exceptions to this may occur if components or technologies needed are no longer available to ABB.*

Within this support period ABB will announce a “Last Buy” opportunity at least 12 months prior to the end of manufacturing (except in cases where there is a direct form, fit and function replacement). It is ABB’s intention to provide support for as long as there are significant customer needs after the "Manufacturing End" through field service, repair and by making replacement spares (new or refurbished modules) available.

**Industry Leader in Lifecycle Management and Investment Protection**

- Your ABB automation system is designed for continuous evolution
  - Always a path forward
  - Maximum investment protection
- Underlying products are sustained by defined lifecycle phases
  - Active until functional equivalent
  - Then, minimum 10 years support thru Classic and Limited phases
  - Documented Lifecycle Status
- Manage system lifecycle costs through:
  - Software Asset Management
  - Evolution Planning

<table>
<thead>
<tr>
<th>Active</th>
<th>Classic</th>
<th>Limited</th>
<th>Obsolete</th>
</tr>
</thead>
</table>

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Product Life Cycle

- **Active** (actively sold)
  - until: Removal from Active Sales for new installations
- **Classic** (manufactured and maintained)
  - Last Buy
  - until: Manufacturing End
- **Limited** (serviced)
- **Obsolete** (normal support unavailable)

- AC460 Controller
- S800 IO
- CCF
- TCL
- TLL

- Advant Station Software

- High Density I/O

- Advant Station Hardware
MOD 300/Advant MOD 300/ PPB /800xA
Continuous, upward, compatible improvements

Evolution through Enhancement
## Product lifecycle status
### Engineering tools

<table>
<thead>
<tr>
<th>Tools</th>
<th>Product Family</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>800xA Engineering</td>
<td>The active version is 5.1 Rev A and FP1&lt;br&gt;- System and Graphic configuration&lt;br&gt;- Safety and Fieldbus applications&lt;br&gt;- MOD 300 CCF Library for AC 800M</td>
<td></td>
</tr>
<tr>
<td>AdvaBuild 3.7</td>
<td>The active software version is 3.7</td>
<td></td>
</tr>
<tr>
<td>AdvaBuild for Unix</td>
<td>Recommend evolution to AdvaBuild 3.6 (Window Server 2008)</td>
<td></td>
</tr>
</tbody>
</table>
### Product lifecycle status

**Operator consoles**

<table>
<thead>
<tr>
<th>Class: Consoles</th>
<th>Product Family</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active</strong></td>
<td>800xA Process Portal</td>
<td>800xA Operations is the eXtended Automation Operator Workplace for 800xA for MOD 300.</td>
</tr>
<tr>
<td><strong>Obsolete</strong></td>
<td>AdvaCommand Advant Unix</td>
<td>Hardware Limited (2001) and Software Limited(2011)</td>
</tr>
<tr>
<td><strong>Obsolete</strong></td>
<td>Multibus Consoles</td>
<td>.</td>
</tr>
</tbody>
</table>
## Product lifecycle status

### Controllers

<table>
<thead>
<tr>
<th>Controller</th>
<th>Product Family</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 800M</td>
<td>Redundant PM861, PM864, PM866, PM891 Safety: PM865 PROFINET, FF, Device NET, Ethernet IP, IEC61850 Goose, … CI862 TRIO interface</td>
<td></td>
</tr>
<tr>
<td>AC 460</td>
<td>TRIO, S100, and S800 MVI available, plus PLC’s</td>
<td></td>
</tr>
<tr>
<td>SC Controller</td>
<td>Hardware is Obsolete. Software is Limited</td>
<td></td>
</tr>
<tr>
<td>Model B Controller</td>
<td>.</td>
<td></td>
</tr>
</tbody>
</table>
# Product lifecycle status

## I/O subsystem

<table>
<thead>
<tr>
<th>I/O</th>
<th>Product Family</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>S800 I/O</td>
<td></td>
<td>S800 I/O is configured using AdvaBuild and Control Builder</td>
</tr>
<tr>
<td>S100 I/O</td>
<td></td>
<td>S100 I/O configured using AdvaBuild</td>
</tr>
<tr>
<td>MOD 300 Taylor Remote I/O (TRIO)</td>
<td></td>
<td>“Blocks” via ABB transitioned to “limited” in 2000. Genus 1 Blocks still Active from G-E. TRIO on AC460 is ACTIVE. Recommend evolution to S800 I/O. TRIO on AC800M is ACTIVE</td>
</tr>
<tr>
<td>Direct I/O</td>
<td></td>
<td>Recommend evolution to the latest members of S800 I/O</td>
</tr>
<tr>
<td>High Density I/O</td>
<td></td>
<td>Recommend evolution to the latest members of S800 I/O</td>
</tr>
<tr>
<td>Communications</td>
<td>Product Family</td>
<td>Remarks</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>eDCN</td>
<td>eDCN</td>
<td>Active. “DCN over Ethernet”</td>
</tr>
<tr>
<td>DCN</td>
<td>DCN</td>
<td>Active. MOD 300 Distributed Communication Network, Token Ring protocol</td>
</tr>
<tr>
<td>Advant AC410 D/D, E/E, E/D</td>
<td></td>
<td>Active as Communications Gateway (D/D, E/E, and E/D)</td>
</tr>
<tr>
<td>Real Time Accelerator (External)</td>
<td>PU41x</td>
<td>PU410 for eDCN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PU412 for DCN</td>
</tr>
<tr>
<td></td>
<td>Internal (PCI) RTAB</td>
<td>PU514A for eDCN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PU515A for DCN</td>
</tr>
</tbody>
</table>
# Product lifecycle status

## Production Management (Batch)

<table>
<thead>
<tr>
<th>Class: Consoles</th>
<th>Product Family</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consoles</td>
<td>800xA Batch Management</td>
<td>800xA Batch Management is in the “active” phase of its product lifecycle.</td>
</tr>
<tr>
<td></td>
<td>ProduceIT Batch</td>
<td>Transitioned to “Classic” in December 2008. Recommend evolution to 800xA Batch Management.</td>
</tr>
<tr>
<td></td>
<td>Batch 300</td>
<td>Recommend evolution to 800xA Batch Management.</td>
</tr>
</tbody>
</table>
### Product lifecycle status

#### Information Management (History)

<table>
<thead>
<tr>
<th>Class: Consoles</th>
<th>Product Family</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>800xA Information Manager</td>
<td>IM is in the “active” phase of its product lifecycle. Can inter-operate with AdvaInform V2 &amp; V3 (consolidation node).</td>
</tr>
<tr>
<td></td>
<td>AdvaInform V3 Enterprise Historian</td>
<td>Transitioned to “Classic” in April 2008. Recommend evolution to 800xA IM. Process Portal B</td>
</tr>
<tr>
<td></td>
<td>AdvaInform V2 – (UNIX)</td>
<td>Transitioned to “Classic” in May 2005. Recommend evolution to 800xA IM.</td>
</tr>
<tr>
<td></td>
<td>History (Multibus)</td>
<td>Transitioned to “Limited” in April 2001. Recommend evolution to 800xA IM.</td>
</tr>
</tbody>
</table>
MOD 300 Controller: AC460

- High Performance
  - Faster CPU
  - More user memory
- Increased Security
  - 1:1 redundancy
  - Redundant I/O options
- Uses **Existing** Control Configurations
  - S800 I/O
  - S100 (redundant)
  - TRIO
- Open Architecture
  - PLC and third-party interfaces
  - Profibus
  - DCN or eDCN connection

Investigation underway for potential development of new control modules with higher performance and more memory.

Increased value for customers

Long term sustainability
AC460 I/O

S800 Remote I/O
- Small Footprint
- Wide Range of I/O Modules Types, Including Intrinsically Safe
- Redundant Communications

S100 Redundant I/O
- Redundancy to the I/O: analog and digital
- Supports: Extended Over range (EOVR), Output Hold (OH), and Warm start (Warm)
- Re-engineered for long term manufacturability
  - Surface Mount Technology for Higher Reliability and Extended Lifecycle

Rich Functionality
Long term sustainability
Controller interface modules are **Active**
  - AC460 MVI
  - AC800M CEX

ABB commits to support TRIO as long as the GE maintains *Form, Fit and Function*

GE continues to manufacture GENIUS I/O (TRIO) (they have retracted their prior statement about a lifecycle change)
The need to evolve.

Control system evolution is:

• The continuous process of updating systems to current technologies so manufacturing operations remain competitive in today’s global environment.

• An incremental process.

• Based upon using your existing installation as the foundation for change.

• Typically a systematic, on-going effort, with a step-by-step approach is recommended.
Evolution Process Site Audit

- System Overview
- HMI Details
- Controller Details
  - CPU Loading
  - Memory Utilization
  - Applications Running
- EH Data
  - Number of Logs Sample Rates
- Batch Data
- Licensing Info
Evolution Steps

- Site Audit Report
- Evolution Report
Existing Control System - Solution Area

Notes
1) All Unix Stations support 3 Clients.
2) AdvaBuild ver 2.7/4
3) AdvaCommand ver 1.7/2
Risks of not moving Forward.

- Single Point Failure in HMI’s could result in HMI being non recoverable.
- ABB no longer supplies these items.
- Ebay or equivalent is the only option, condition unknown.
- Production Downtime Cost versus Project Cost.
- Unplanned failure could impact production.

XXX has experienced 2 hard drive failures per year for the last two years.

RTA (Interface between HMI and Controllers) boards are only available only as refurbished units and the Unix station parts are scarce, used and 15 years old.
Evolution Plan

MOD 300 Distributed Communications Network

Notes:
1) 1 Environment
2) ASR 02, ASR 06 remain backup for x Months.

300 Tags 15 Graphics

AC 460 CSS 200
AC 460 CSS 700
CS 1000

IMS 6500 Tags

Redundant Connectivity Servers
Primary Redundant Connectivity Servers
Redundant Aspect Servers
Primary Redundant Aspect Servers
OPC Server 1100 Existing
Primary Domain Controller
Redundant Domain Controller

KVM

AdvaBuild v 3.7
Evolution Plan Phase 1

- Update ES

MOD 300 Distributed Communications Network

Notes
1) 1 Environment
2) ASR 02, ASR 06 remain backup for x Months.

300 Tags 15 Graphics

AC 460 CSS 200
AC 460 CSS 700
CS 1000

300 Tags 15 Graphics

300 Tags 15 Graphics

AC 460 CSS 200
AC 460 CSS 700
CS 1000

300 Tags 15 Graphics

AC 460 CSS 200
AC 460 CSS 700
CS 1000

300 Tags 15 Graphics

Notes
1) 1 Environment
2) ASR 02, ASR 06 remain backup for x Months.
Evolution Plan Phase 2

Remove Unix Boxes replace with 800 xA

MOD 300 Distributed Communications Network

AC 460 CSS 200

AC 460 CSS 700

CS1000

300 Tags 15 Graphics

Notes
1) 1 Environment
2) ASR 02, ASR 06 remain backup for x Months.
Evolution Plan Phase 3 Power House Addition.

- Consolidate Into CS 1100

- Savings approx 250K

- Power House Addition

a. 200 Ain
b. 45 Aout
c. 300 DI
d. 100 DO
e. 50 Graphics
Power House Incorporation into Existing Subsystem Savings

- By utilizing existing existing Contoller Sub-System.
- Hardware (Cabinets, Power Supplies labor cost, )
  50K
- Utilize the same ES,
  97K
- Utilize the 800xA Components. Historian, Domain Controller etc.
  100K
- Total Savings 200K – 250K
Time Line and Impact on Production

- Phase 1
  - Yr 1 Upgrade ES.
  - Executed at ABB
  - Downtime 8 hrs
  - Risk Low.

- Phase 2
  - Upgrade Unix to 800xA
  - ABB/xxxx Project
  - Executed off site
  - Extensive offsite testing
  - Downtime Zero.
  - Risk Low.

- Phase 3
  - Power House Addition.
  - Off site execution
  - Extensive Off Site Testing
  - Downtime 3 Days
  - Field wiring will extend this time.
  - Risk Low
Power and productivity for a better world™