



FoCul
IT Solutions for Manufacturing

The ABB pRIME© Toolkit :

Industrial Collaboration through Lotus Notes

The Business Challenge

ABB has an extensive portfolio of Asset Life and Risk Based Inspection studies which it delivers to clients globally under the banner of pRIME© (Process Reliability and Integrity Management Excellence)

These studies require detailed site assessments of equipment and processes where both the ABB consultants and their clients need to capture operational data across many items of equipment.

The data is then reviewed and amended in multidisciplinary workshops before risk rankings, investment plans and recommendations are proposed by ABB.

A typical review will assess several hundred items of equipment and usually requires more than one ABB consultant. IT connectivity on site is usually very limited.

All of the data collected, the analysis and the recommendations needs to be automatically compiled as a single consolidated report using Microsoft Word and Excel. These reports also need to be configurable by Consultants in the field.

Clients also need to be able access the detailed information on an ongoing basis without any special IT infrastructure.

The system needs to be robust, secure and maintainable into the future



The Solution

FoCul worked with ABB to develop a suite of Notes and Domino applications which made it possible for the ABB to carry out these structured asset reviews within a secure IT system known as the pRIME© Toolkit.

The system allows ABB and their clients to work together capturing the asset information electronically so that it can be reviewed during multi disciplinary reviews. The system synchronises data from the different team members through Client-Server or Peer to Peer connections allowing individuals to work in a disconnected fashion on site but to then share their data across the whole team. This functionality also allows the information to be reviewed by specialist Engineers outside of the immediate project team.

As each item is reviewed different stage gates are passed in the workflow process. This locks the documents and allows the overall progress of the project to be tracked by a traffic light system.

Recommendations created during the review are each individually costed and given target dates to produce an investment profile for the assets.

All of the information generated during the study can be automatically transferred to structured reports in MS Word and Excel at any time. The format of these reports are configurable in the field on a project by project basis.

It is also possible for ABB's clients to view the detail in Lotus Notes, via the web or as static data on a CD or USB pen based html web site.

“Working with FoCul has delivered quality and efficiency improvement to our consultancy processes and services, whilst retaining the ability to customise work processes at short notice to meet specific customer needs

The benefit has been a 30% efficiency saving, allowing ABB to deliver over £12M of studies more competitively since 2002”

David Stanier, Principal Consultant, ABB

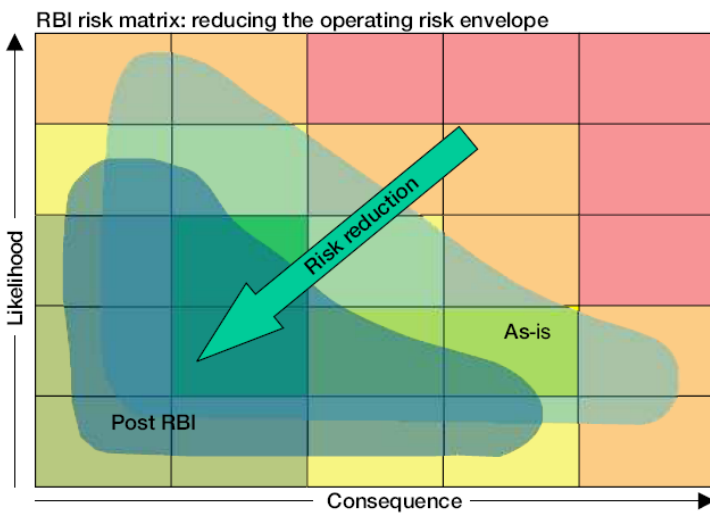
pRIME© - ABB Integrity Management

ABB helps process industry companies improve the integrity of their operations and assets. ABB's risk based approach reduces safety and business risks cost effectively.

Regulation, aging assets, poor reliability and skills shortages drive many manufacturing companies to reassess their focus on all components of integrity management including the assets, systems and people. ABB brings a well respected and independent approach to any stage of the improvement process.

ABB's pRIME© (Process Reliability and Integrity Management Excellence) programme combines leading methodologies and tools with expert technical judgement to initially identify and then deliver integrity improvements. ABB prioritise the key areas to address, rather than unnecessarily assessing areas with no scope for beneficial improvement.

A typical module within the ABB pRIME© programme is Risk Based Inspection Plus (RBI+©)



The RBI+© Process

Traditionally petrochemical companies inspected much of their equipment on a proforma basis whereby it was removed from service, cleaned out and visually inspected at set intervals.

These inspections, typically every 4 years , were very expensive because they required whole sites to be closed down for several weeks.

This traditional approach is being replaced by a Risk Based Inspection methodology which considers the likelihood and consequence of an equipment failure and sets the examination interval on that basis.

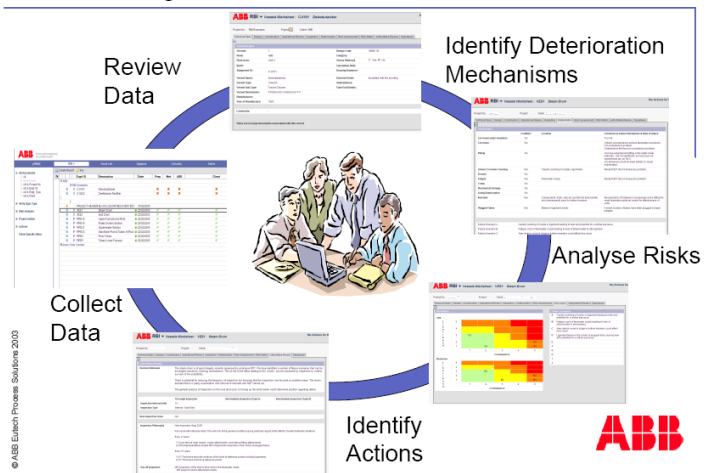
The ABB RBI+© process enhances this approach by developing a better operating and inspection regime which typically uses a wider range of non invasive techniques to assess the condition of the equipment between internal visual inspections. The new regime reduces the likelihood and/or consequence while at the same time usually reducing the frequency of internal visual inspections with very significant cost benefits. A fundamental part of this process is a collaborative review by operating and maintenance specialists from within both ABB and the client . This review is carried out item by item within the proprietary ABB RBI+© framework using the Lotus Notes based pRIME© toolkit application.

A typical RBI+© study will include several hundred items of equipment spread across several specialisms (machinery, vessels etc..). Each specialist consultant will work with the clients to review their equipment. All of the information, the assessments and the recommendations are combined within the pRIME© toolkit application.

The team members can quickly see the status of every item and all of the information can be exported to structured Word and Excel reports at any time.

Clients without a Notes infrastructure can also use the toolkit using the Nomad USB pen based Notes client or access the information securely over the web.

The RBI+© Process



pRIME© - Implemented in Lotus Notes

One of the slogans for the ABB pRIME© suite is “*More than just a software tool*”. A key differentiator between the ABB pRIME© offering and the more generic industry offerings is that the ABB process is fundamentally about collaboration between experts in ABB and experts in their clients organisations. The pRIME© application supports this collaboration by allowing these multifunctional teams to share information within a structured framework that also supports good project control.

FoCul has worked with ABB on the pRIME© toolkit application since its first iteration in 2003. The application is an ideal use of the Lotus Notes platform.

Key Functionality

Security

The application is secured using tiered access so that access to modify documents can be controlled module by module. All of the data is encrypted while it is in the field.

Disconnected use and P2P replication

Individual team members can add and edit information while disconnected. Where a number of consultants are working in the field together they can carry out P2P replication using Colligo Workgroup add-on for Notes. Consultants can also choose which projects to take with them on their laptops using a selective replication wizard. Information from across the project team is combined as the team members use the Client– Server or Peer to Peer replication processes.

Consistent workflow and management reporting

Each equipment item review goes through a series of secure stage gates to ensure that all of the information has been collected, analysed and the recommendations captured. This allows much greater flexibility during the study because both the client and ABB are able to contribute information up until the formal review stage gate is closed. It also ensures that the client has reviewed any assumptions and has agreed the basis of the recommendations. The progress of each item can be seen by the coloured icons in the example above.

Automated generation of reports

The application can create structured Word and Excel documents directly from Lotus Notes. These reports are highly configurable and include rich text, images, charts, pivot tables and tables of recommendations. Headers and footers page numbers are all configurable. These documents typically run to several hundred pages and can be configured project by project.

Configurable imports from Excel

Information to start the projects can be imported from a configurable Excel spreadsheet. This is typically used to import the equipment list and base data which may be several hundred items long.

Deployable with or without a Notes infrastructure

Clients without a Lotus Notes infrastructure who wish to access the project information dynamically can use the application on the USB pen enabled Lotus Notes Nomad client without any local software install.

The application can also be accessed securely via the web and a static version of the database can be compiled to HTML and supplied on a CD or USB pen as a read only web site

Bespoke but supportable

Being built on the Lotus Notes / Domino platform the system is supportable into the future on a platform that has a clear roadmap and which has an excellent record on backward compatibility.

The screenshot shows the ABB pRIME application interface. The top navigation bar includes 'pRIME', 'RBI +', 'Asset Life', 'Signpost', 'Criticality', and 'Admin'. The main window displays a table titled 'Search in View 'RBIItemsAll by Client''. The table has columns for 'Eqpmt ID', 'Description', 'Date', 'Prep', 'Met', 'ABB', and 'Client'. The data rows include various equipment items with their respective dates and completion status, indicated by colored icons (green for 'Met', red for 'Prep').

Eqpmt ID	Description	Date	Prep	Met	ABB	Client
V C-0101	Deisobutaniser		✗	✗	✗	✗
V C-0202	Diethylizer Redifier		✗	✗	✗	✗
V P/123ABB	Hot Water Drum	31/10/2006	✓	✓	✓	✓
V P/123ABB	Hot Water Drum	07/10/2003	✓	✓	✓	✓
V P/456	Preflash Tower		✗	✗	✗	✗
V P/456	Preflash Tower	11/12/2003	✓	✓	✓	✓
V P/456	Preflash Tower	05/12/2006	✓	✓	✓	✓
V P/456	Preflash Tower	09/01/2004	✓	✓	✓	✓
M Agitator and Drives	Generics		✗	✗	✗	✗
M Centrifugal Pumps	Generics		✗	✗	✗	✗
M P72801	Example NGL Transfer Pump	28/01/2008	✓	✓	✓	✓
M P78201.R	Example NGL Transfer Pump		✓	✗	✗	✗

Technical Specs

- Compatible with Notes 5,6,7, 8,8.5 (including Nomad - Notes on a USB stick)
- Uses Colligo® Workgroup for P2P replication
- Integrates directly with MS Word and Excel to produce detailed and configurable reports and charts
- Domino interface for access via the Web
- Can be exported to a static HTML site for read only browsing with a standard web browser
- Includes a licensing module allowing it to be licensed to clients for a fixed period of time
- Includes selective replication functionality and a large attachment store to improve replication performance

Project Processes

The pRIME© toolkit was first implemented in 2003 and has been incrementally expanded to include the latest versions of ABB's proprietary methodology.

The system is used within ABB and by some of their clients, often in situations where communications with the servers is difficult. It is currently being used on versions 5 through 8.5 of Notes.

FoCul and ABB use a structured release process and pre-production test environment to ensure that new releases are robust before being deployed.

Each significant feature release goes through the following steps :

Customer Requirements

User requests and new best practices from within ABB and FoCul are reviewed on a regular basis and considered for inclusion in the system.

Costing, Feasibility and Proof of Concept

FoCul reviews the requests to determine their feasibility and cost. Fixed price proposals are usually made.

Where there is any technical uncertainty or additional specification is required FoCul will produce a Proof of Concept.

Development and Testing

The new release is developed and tested by FoCul. The work will go through a "Developer Testing" phase and then an "Internal Testing" phase. Internal Testing is carried out by the developer and the project manager.

User Acceptance Testing (UAT)

User acceptance testing is carried out on the ABB servers using a pre-production database. This test uses real scenarios and the ABB Key Users.

Deployment

An assessment is made to determine the impact of a new release on remote workers. If necessary the deployment will be planned around large projects.

A deployment note is released to advise users of new functionality.

Ongoing Support

FoCul provides ongoing support for the pRIME© toolkit to both ABB and their licensed customers

Useful Links

ABB

<http://www.abb.com>

ABB Risk Based Inspection

<http://www.abb.com/search.aspx?q=Risk+Based+Inspection>

ABB pRIME© Toolkit

<http://www.abb.com/search.aspx?q=pRime+Integrity>

ABB RBI+© Reference List

<http://www.abb.com/search.aspx?abbcontext=products&q=RBI+Reference+List>

About FoCul

FoCul is an Advanced IBM Business Partner specialising in the development and delivery of pragmatic, robust and effective collaboration tools for industry.

Our dual experience as Professional Engineers and IT Professionals allows us to develop systems that are not only very effective but are also good value for money.

Our solutions can be rented or bought out right and we can host them for you if required (via Lotus Notes or on the web).

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