Coming together under the Industrial^{IT} umbrella

Brad A. Hoffman

As a key element of its business strategy, ABB has committed to a broad program of product development and positioning under the Industrial^{IT} umbrella. This initiative is geared toward increasing standardization of ABB products as the 'building blocks' of larger solutions, while building in functionality that will allow multiple products to interact seamlessly as components of real-time automation and information systems.

Far more than a marketing strategy, the Industrial^{IT} umbrella has come to symbolize virtually every business action ABB will take going forward. It is part vision, to be sure, recognizing that any successful strategy must include aggressive goals. Far more important, however, is the long-term commitment of ABB to three critical factors that will distinguish Industrial IT from its imitators:

■ A robust family of compatible, reusable products that will serve as the 'knowledge components' for Industrial IT solutions.

■ A powerful, open architecture for enabling each component as part of a real-time automation and information solution.

■ Deployment of ABB's vast domain industry expertise through a customer-focused organization serving key client industries.
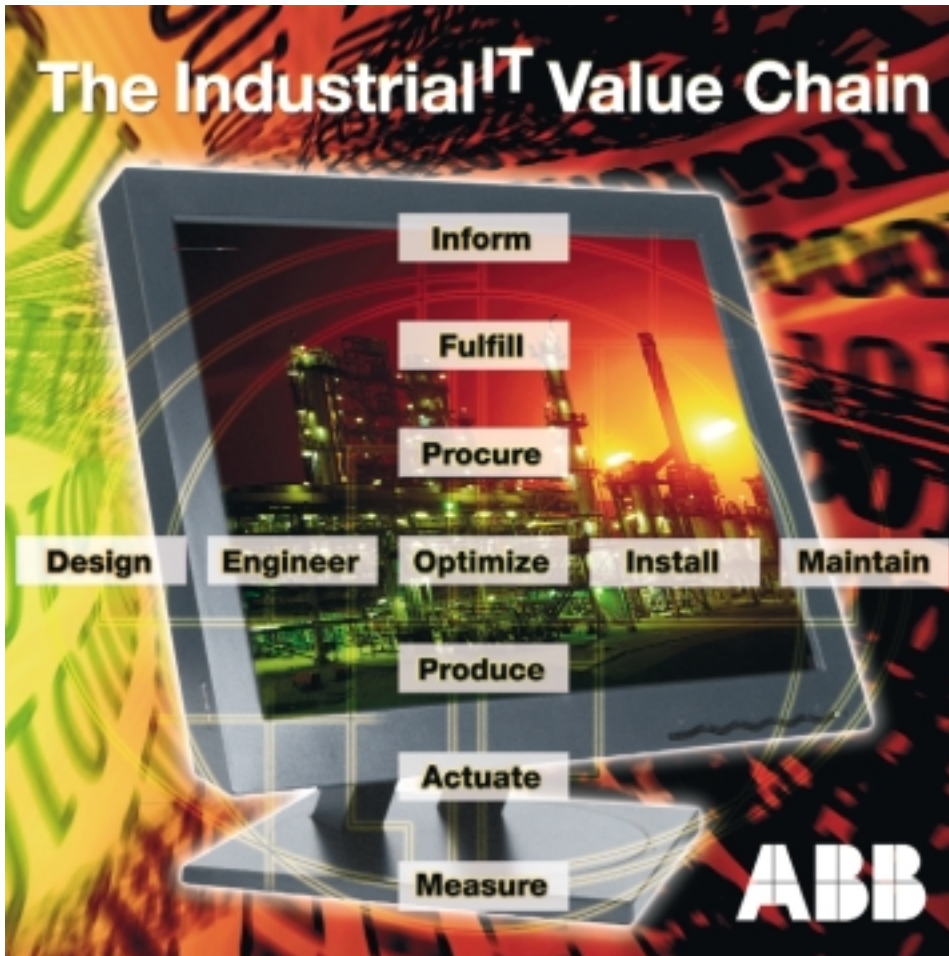
Why Industrial^{IT}?

In approaching the commitment to Industrial IT, ABB has done some hard thinking about what we can really offer our customers. Our conclusion was that ABB's most valuable 'product' isn't sold in a box any longer. Enter the era of knowledge-based solutions.

ABB motors, drives, robots, instruments, controls, protection and power systems operate more plants and processes than those of any similar supplier. While we're proud of this record, our most exciting success has come when we and our customer reached beyond the process or the plant to integrate systems that influence a multi-faceted business enterprise spanning marketing, design, manufacturing, quality, finance, fulfillment, logistics, and similar processes.

The interaction of these processes – and the systems that guide them – through the exchange of dynamic, real-time information is what we've chosen to call Industrial IT.

In its simplest form, Industrial IT could be characterized by an open control system that automatically configures and re-ranges hundreds of plant instruments to the real-time needs of a new production run. But it could be much more.

The Industrial^{IT} Value Chain spans ABB tools for production, asset management and collaborative business processes.

Imagine, for example, that each physical plant device was accompanied by a dynamic, living software entity, carrying with it not only configuration data but control software, purchase and cost information, maintenance records, mechanical drawings and networking information. Next, imagine that the same approach could be applied to products, endowing each batch, barrel, or box with a dynamic set of real-time characteristics.

Now, consider the impact if distributed plant devices could inherit functionality from the environment in which they were placed: New devices would be configured not by a host control strategy, but as a direct result of the business setting in which they were deployed; process transmitters and valves would inherit the range information required for the current 'recipe'; motors and drives would adjust their control setpoints as a function of current line speeds; and robots and manufacturing cells could be moved from one task to another – retrieving new control software as they 'recognize' the new process and its requirements.

Just as these devices could automatically inherit characteristics from their surroundings, so they could report information and influence operations in other parts of the enterprise. Through the integration of diverse systems for manufacturing, sales pursuit, fulfillment, and enterprise logistics, the vision of real-time 'eProductivity' could be stretched all the way from procurement of the most basic raw materials to delivery of highly customized finished products.

This enterprise arena, spanning ABB tools for production, asset lifecycle management, and real-time collaboration, defines the space we call the Industrial^{IT} Value Chain.

Enterprise building blocks

To ensure deployment of the required tools for every link in this value chain, ABB has defined some 30 functional
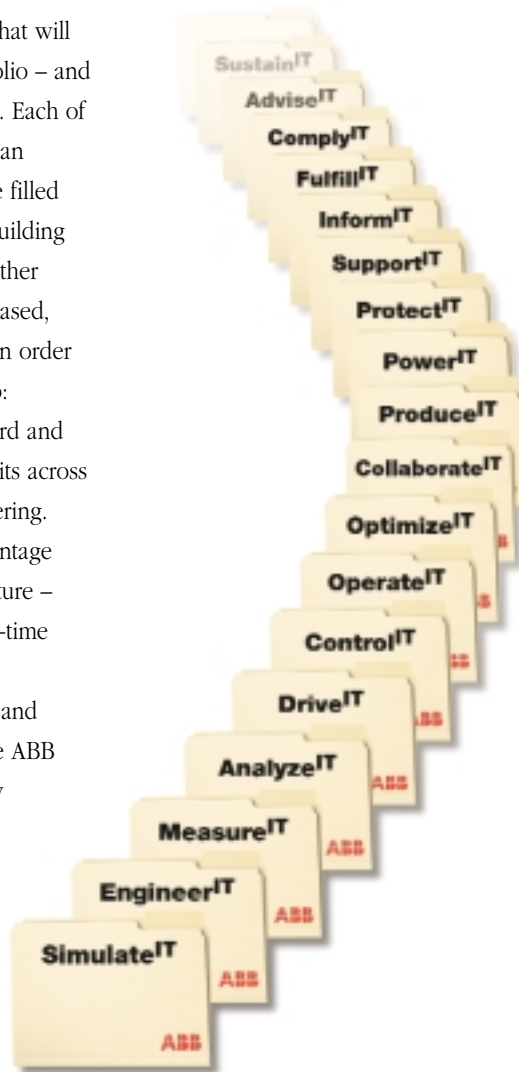
Industrial IT building blocks span some 30 functional categories of ABB technology, from process design through lifecycle support to real-time collaboration.

categories for the technologies that will comprise the Industrial IT portfolio – and our ongoing development focus. Each of these categories corresponds to an Industrial[IT] Product Suite – to be filled with pre-engineered, reusable building blocks. These components, whether hardware, software, or service-based, must achieve three distinctions in order to join the Industrial IT portfolio:

■ The products must be standard and available for use by business units across ABB, without additional engineering.

■ The products must take advantage of the Aspect Objects™ architecture – ABB's dynamic platform for real-time integration.

■ The products must be tested and certified for compliance with the ABB Industrial IT enabled technology standard.

Symbolic of this commitment to compatible and reusable technologies, the Industrial IT strategy even changes the way products from ABB's numerous business units are named and brought to market. In place of the stylized trademarks often applied to niche technologies, Industrial IT components will enjoy a common, descriptive naming approach based on their respective product suite. Examples are:

■ Design[IT] – Tools to assist in designing primary equipment, process trains, plants and supporting systems.

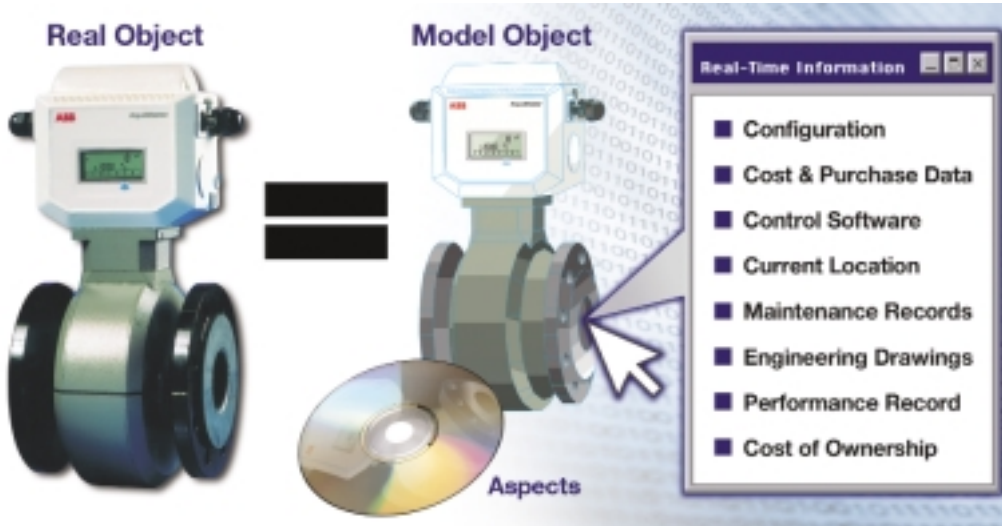■ Operate[IT] – Tools to facilitate interaction between automation systems and human operators.

Sustain[IT]
Advise[IT]
Comply[IT]
Fulfill[IT]
Inform[IT]
Support[IT]
Protect[IT]
Power[IT]
Produce[IT]
Collaborate[IT]
Optimize[IT]
Operate[IT]
Control[IT]
Drive[IT]
Analyze[IT]
Measure[IT]
Engineer[IT]
Simulate[IT]

■ Produce[IT] – Tools to improve the planning, scheduling and manufacturing of finished products.

■ Protect[IT] – Tools to protect against faults in the operation of equipment and facilities, and ensure personnel safety.

■ Optimize[IT] – Tools for tuning, improving or optimizing productive systems or end-products.

■ Collaborate[IT] – Tools to facilitate real-time, eBusiness interaction among suppliers, manufacturers and end-customers.

■ Support[IT] – Tools to help install, commission, maintain and extend the useful lifecycle of business assets.

■ Sustain[IT] – Tools for achieving environmental improvement, reducing energy consumption, etc.

Putting the pieces together

To facilitate the real-time integration of these Industrial IT building blocks, ABB has developed a powerful enterprise architecture called Aspect Objects™. Based on the Microsoft Component Object Model (COM), this platform considers the myriad of enterprise objects (plant devices, machines, materials, products) as the building blocks that make up a total business scenario. Although the various objects and their associated software may reside on multiple networks or computers, each object carries with it an integral collection of characteristics or aspects such as configuration, efficiency, maintenance status, mechanical and electrical drawings, etc. A click on any object icon quickly offers up a wide range of context-sensitive, real-time information.

An Industrial IT 'system' is created by dynamically linking a series of these distributed objects – and their real-time characteristics – as software clients. Drawing from a vast library of dynamic enterprise objects, the Industrial IT architect will deploy real-time, repeatable automation scenarios to fit a wide variety

of business objectives. Just as one would browse the files in a PC directory, the user will browse among and configure multiple structures of enterprise assets, assigning each to the most productive and profitable task at hand.

Customer-focused teams

In determining how we could best provide such advanced capabilities to our customers, ABB first asked the same customers how we could improve our own organization. In place of a product-focused organization, customers asked for one sales and engineering team, supported transparently by our development and manufacturing organizations. This unified approach was viewed as critical to the complex, integrated Industrial IT solutions of the future.

To meet this goal, ABB is now engaged in an aggressive restructuring program. We are building customer-focused teams for each of our major industries in each country where we operate. Key account managers will coordinate our interaction with these customers, backed by skilled product specialists from our manufacturing divisions. This approach will allow us to most effectively deliver the integrated solutions which characterize the future of Industrial IT.

This exciting new organization will position our product technology units to develop the Industrial IT 'building blocks', for bundling and deployment through both internal and external channel partners.
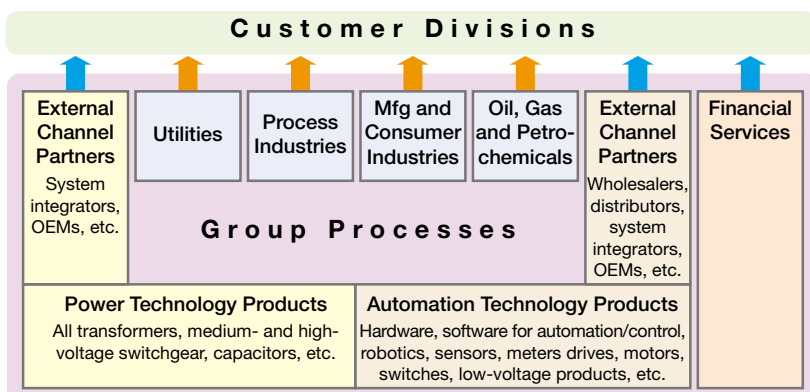
Author

Brad A. Hoffman
ABB Automation Technology Products
CH-8050 Zurich
brad.hoffman@ch.abb.com
Fax: +41 1 310 11 90