

'Plug and produce' business systems with Industrial IT

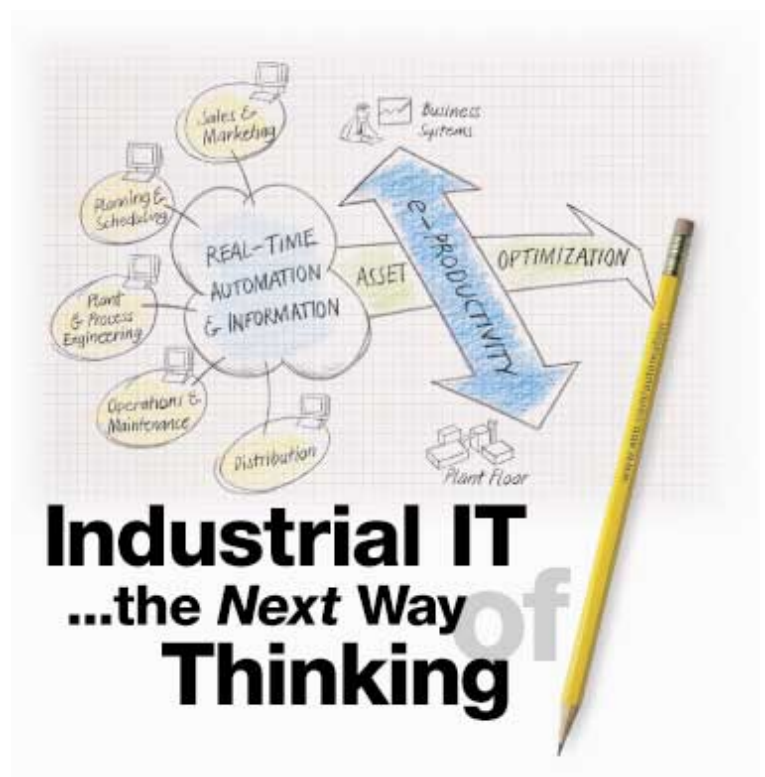
In the process of evolving its businesses to meet the needs of a new millennium, ABB has done some hard thinking about what it really offers its customers. It was concluded that ABB's most valuable 'product' isn't sold in a box. The real value-added comes in the form of *knowledge*.

To be sure, ABB products – motors, drives, robots, instruments, controls, low-voltage devices, power systems, and more – help operate more plants and processes than those of any similar supplier. While proud of this record, ABB's most exciting achievements have come from joining with the customer to reach beyond the process or the plant and integrate systems that influence a multi-faceted business *enterprise* spanning marketing, design, manufacturing, quality, finance, supply management, distribution and similar processes.

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

Those who recall the days of lumbering mainframes, mystical programming

languages, and frenzied computer scientists may react with some caution to the choice of the term *Industrial IT*. To reassure, ABB's goal is to complete the removal of IT Solutions from the 'black box' of mystique in the finance department – shifting them to the realm of real-time, interactive decision support, asset optimization and productivity across the enterprise.



Daring to dream

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

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 and electrical drawings.

Now, consider the impact if these 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, they could also report information and influence operations in other parts of the enterprise. The integration of systems for sales pursuit, enterprise resource planning, supply chain management, and fulfillment would stretch the vision of 'eProductivity' all the way from procurement of the most basic raw materials to delivery of highly customized finished products.

It is against this challenging backdrop that the ABB vision was born.

The Industrial IT value chain

As noted earlier, the Industrial IT concept is remarkably scalable – capable of spanning diverse and numerous facets of the customer enterprise. ABB has long been a leader in technologies which help customers manufacture and optimize

finished products. With the advent of eBusiness, this role is greatly expanding.

Increasingly, ABB customers must improve interaction between these manufacturing operations and the related activities of their own customers and suppliers. Real-time access to customer order requirements, both actual and expected, can produce vast efficiencies in production planning and scheduling. Real-time links to suppliers, based on these order inputs, will move just-in-time procurement to the next level – ensuring availability while reducing inventories of both materials and finished products.

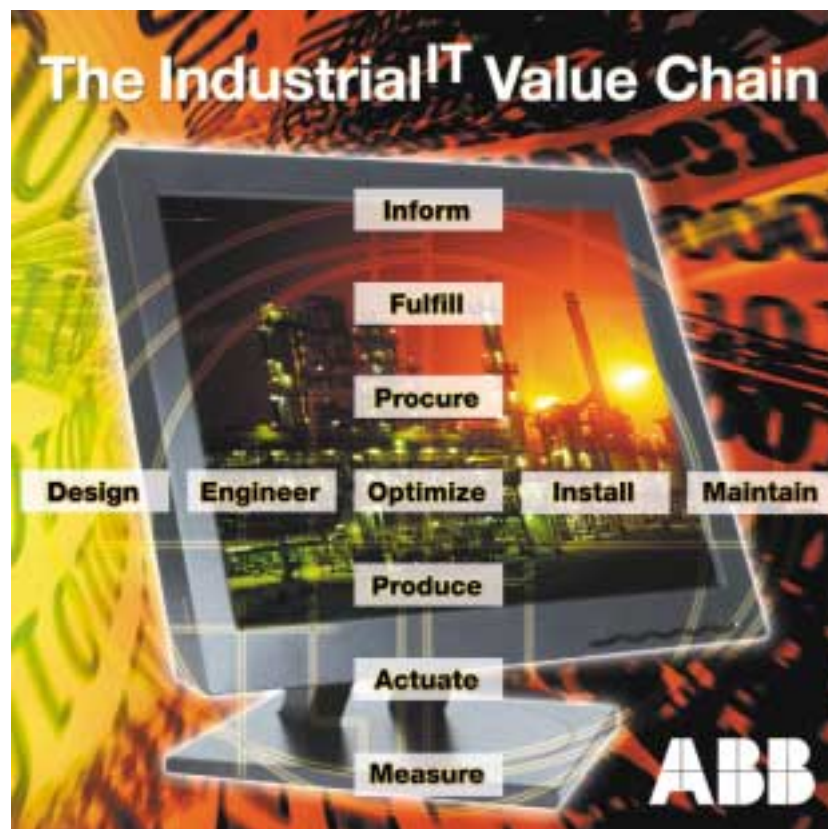
Alongside these activities, ABB is increasingly focused on solutions geared to the customer's asset lifecycle. These range from services to assist in the design of manufacturing plants and processes, to diagnostic and maintenance programs

that maximize asset life. Along the way, ABB strategies for asset optimization will allow customers to evaluate and compare multiple assets in real time – shifting deployment priority to those with the greatest return.

Together, these broad-reaching activities represent the space where ABB serves its customers. The industrial IT Value Chain.

The Industrial IT building blocks

For more than 100 years, ABB and its predecessor companies have brought energy to the world's people, infrastructure to the world's economies, and productivity to the world's industrial processes. Our customers' success, and our own, have come to depend on technologies that provide a *measurable* return on the automation and information investment –





encompassing new productivity, efficiency, quality, safety and sustainability.

It is toward this goal that ABB is redefining its Industrial IT portfolio – the broad family of building blocks from which real-time solutions are born.

The Industrial IT portfolio encompasses technologies in support of every link in the enterprise value chain: software and services for the design of manufacturing and business systems; tools for control and optimization of complex industrial processes; collaborative business tools which link suppliers, manufacturers, and end-users in real time. In each area, ABB boasts a legacy of robust technology and proven performance.

To increase the value of these building blocks to its customers, ABB is committed to enabling each component for true Industrial IT. This means bringing each into compliance with industry standards for connectivity and communications. It means web-enabling each product for accessibility via the Internet and browser-compatible platforms. And it means standardizing ABB's offering so that one product is compatible with multiple solutions.

Only when these commitments have been met will each product from ABB – and from third parties – display the mark *Industrial IT Enabled*.

Putting it all together

To facilitate integration of these Industrial IT building blocks, ABB has developed a powerful new 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. A 'system' is created by dynamically linking a series of distributed objects as software clients.

Beyond the obvious benefits of 'plug and produce' installation and interaction, this object-oriented architecture opens up powerful scenarios for both asset and business management: a click on the object icon offers up context-sensitive

information from current configuration and diagnostic status to maintenance history and scheduling commitments. Linked dynamically to other plant management systems, the device contributes its local assessment to *global* decision support tools, such as production reports by unit or section, process disturbance analyses, or quality comparisons among end-products based on the specific assets used.

Most important, the ABB 'plug and produce' architecture sets the stage for real-time interaction across the enterprise value chain – from eBusiness order input, to just-in-time procurement and production, to end product distribution. 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 you might 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.