



ABB Industrial<sup>IT</sup> team at the International Technology Park in Bangalore – the site of the new development center

## A new Industrial<sup>IT</sup> development center in India

Since February 2002, when it was officially opened, ABB's new Industrial<sup>IT</sup> development center in Bangalore has been busily demonstrating its raison d'être. The choice of this southern Indian city for the new center was an easy one: Apart from the fact that ABB already has a manufacturing base there, the area in and around Bangalore has emerged as a high-tech development hub, popularly dubbed the 'Silicon Valley of India' on account of the country's best-known software companies being based there. In addition to local companies, several American and European organizations have also set up R&D centers in the city's environs.

Today, just twelve months after the inauguration, the center is teeming with young engineers and bustling with activity. An astounding 17 percent of the

engineers here have a PhD and another 28 percent hold a master's degree.

The work carried out in the center reflects the growing content of software in ABB's product and service offerings to customers. At the same time, the center can fully exploit the abundant software capabilities found in this area.

### Concentration on ABB core activities

The development center's engineers have specific domain skills in the various aspects of automation and power technology, the two core areas in which ABB is active. Requirement specification and design analysis activities are carried out at the center, the software coding being outsourced to one of the carefully chosen development partners. These development partners are selected via a rigorous, open selection system that is web-based. The software companies enter business details like turnover, expertise area and major customers. Then, on the basis of this data, ABB filters out the best companies, interviews them and views their premises.

The main benefits of such a strategy include very rapid scalability, based on the needs of ABB and its customers. Plus it serves the center's commitment to top-quality, timely and cost-effective software development. And it allows ABB personnel to concentrate on what they are best at: core automation and power technologies!

### A strong emphasis on processes

From the center's very conception, its processes were considered as the cornerstone of its modus operandi. All the personnel are thoroughly trained in the 'Rational Unified Process' development model. This commitment also extends to all the development partners, most of whom are certified to CMM level 5. Further, it is the goal of the Bangalore Industrial IT center to achieve CMMI certification by the first half of 2004. This strong emphasis on processes and quality shows that customers' requirements are understood clearly and unambiguously, and ensures that the products and solutions developed at the center completely satisfy the needs of the market. Also, the focus on process orientation supports the ABB Industrial<sup>IT</sup> concept of developing pre-engineered, reusable building blocks.

### Supporting business, globally and locally

The center is presently engaged in an array of projects, some in collaboration with other ABB research centers and some directly for business units. For example, the center is working together with Corporate Research in Germany to develop device type managers (DTMs) that aid in connecting various external devices to controllers used in automation solutions. And it has developed a driver for a vibration data collector for the ABB research center in Poland as part of an overall pilot solution involving remote condition monitoring of rotating machinery. Industrial IT certification activity is another major thrust at the center. It is an accredited certification center and

has provided certification services for automation and power technology products. Besides this, it has developed a web-based training tool for guidance in the certification process.

Local business requirements can at times pose a unique technology challenge, and necessitate development work geared to a client's special circumstances. The development center actively supports local businesses at every stage of such projects. By involving other corporate research centers in the projects, it draws upon the immense global technical expertise available within the ABB Group.

#### **AIP competence center**

ABB's AIP, or Aspect Integrator Platform, is a dynamic single architecture for integrating the diverse automation and power products of ABB. The Bangalore Industrial IT development center is a designated competence center for development related to this platform. At present, it is engaged in enhancing AIP functionality by adding a 'notes' feature. This allows the operator to 'note down' on the operator terminal any significant observation that he would like to pass on to the next shift or to his manager. Such a feature is useful, for example, when an operator notices a change in the sound being made by a motor. Passed on to the manager at the right time, such an observation can result in timely corrective action and avoidance of production losses. The center will shortly be equipped with a full-fledged lab for thorough testing of the new AIP functionality.

#### **The future**

With the people and processes in place, and an operational strategy that can be seen to be working well, the ABB Industrial<sup>IT</sup> Development Center in India is poised to play a major role in ABB technology development. What is more, the relevance of the center has been brought into clearer focus by the prevailing market conditions and needs.

Thanks to this strong footing, the center is well equipped to fulfill its mission: top-quality, cost-effective development, built upon robust processes and a dynamic and scalable operating model.

## **Toward sustainability optimization with Industrial<sup>IT</sup>**

ABB scientists are working on a solution that uses the Aspect Objects<sup>™</sup> feature of the ABB Industrial<sup>IT</sup> architecture to improve the sustainability performance of products through more effective data management.

#### **Motivation/problem**

The majority of industrial enterprises run processes which are energy-intensive. In addition to the direct cost and environmental impact of the energy consumption as such, the quality of the power/energy service can also heavily influence product quality, process throughput and asset and personal safety.

Clearly, any improvement program of which energy and environmental management is a part will involve collecting data, identifying opportunities, setting targets, implementing changes, monitoring results, and so on.

In other words, efficient access to the right information is key.

#### **The solution**

Energy and environmental management implies introducing improvements to various areas and disciplines of an organization, so defining the right information depends largely on the user, for instance:

- The supply manager needs to verify the utility bills and be notified if the quality of service does not comply with the contract.

- The production manager will be interested in knowing whether or not he is on track to meet his target of, say, a 5% reduction in energy consumed this year, and he will want to be notified of improvement opportunities.
- The asset manager will benefit from a list of equipment that indicates candidates for service or even retrofitting – due to energy inefficiency – during the next planned production stop.

Although different information is required for different tasks and different users, most of it can be derived from certain core energy data related to the various process objects: energy consumption, losses and efficiency, its availability and cost, as well as some additional quality data.

#### **Where we stand today**

ABB scientists are making use of the Industrial IT architecture to develop a solution that will ensure consistency in the organization and handling of sustainability information. It is based on Aspect Object technology – Energy Aspects – and uses the Aspect Integrator Platform (AIP) as a framework for integrating existing plant and enterprise data.

Process components, such as a fixed-speed motor, can have sustainability aspects (an example would be its electricity consumption) associated with it. By defining and using such aspects, and aggregating the information hierarchically along various structures, data can be effectively transformed into sustainability information at the process section, plant or even enterprise level.

Demonstrating the benefits of this powerful concept is an enterprise with three PVC plants that ABB's Industrial<sup>IT</sup> platform has enabled to monitor key sustainability and safety performance parameters. These performance parameters are then benchmarked against critical values to identify any need for further action or optimization.