Virtual sales assistant

Navigating within ABB to find complete Industrial^{IT} solutions

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Industrial^{IT} certification of ABB products continues to progress and today close to 40,000 products are formally certified to level 0, which means they are information enabled. But how does this unified approach to the company's broad product portfolio benefit customers and their businesses?

One way in which ABB can uniquely serve key customers across industry is to simplify their interface to our company, provide tools for design calculations and enable them to integrate individual products into larger configurations. Industrial IT certification does this by letting customers navigate both within the ABB group of companies and within the product portfolio, to find products that fit together and are 'right' for a specific application. To see what we mean, step aboard a locomotive from one key customer, Bombardier Transportation, a global leader in rail equipment with group headquarters in Canada.

The combined global revenues of the railway supply industry in 2002 was US$ 34 billion. Half of this total was earned with rolling stock – locomotives, railcars, high-speed trains, commuter trains, subway trains and trams – and half with traction power supply and signaling equipment, maintenance and track work. Bombardier Transportation is the largest of the world's three main system integrators, with a market share of 24 percent.

ABB's involvement with the rolling stock industry goes back a long time. At one point, ABB and Daimler Benz jointly owned Adtranz, a rolling stock supplier that was taken over by Bombardier Transportation in 2001. Although ABB no longer supplies rolling stock as such, much of the basic technology still exists within the company. A look at the typical cost structure of a locomotive 1 shows that ABB can in fact supply a substantial part of the equipment, potentially adding up to more than 50% of the total bill of material.

Top suppliers

To become more competitive Bombardier, like many other companies, has identified some key needs:

- Increase asset utilization by concentrating capital-intensive activities in specialized plants.
- Increase market presence by moving final assembly to local markets.
- Reduce delivery times by standardizing and working with fewer suppliers.
- Improve quality by implementing Six Sigma[1)] at all supply levels.

How does level 0 certification of the ABB product portfolio benefit our customers and their businesses?

Bombardier's road map for supply chain management goes from buying products from many thousands of suppliers to buying subsystems from a smaller, more select number of suppliers.

Dealing with fewer vendors has many benefits. Managing the supply chain, for example, becomes easier and less costly. Developing products and systems as well as administrative routines become generally more effective, and they tend to be carried out in a spirit of true partnership, with more time spent with each partner.

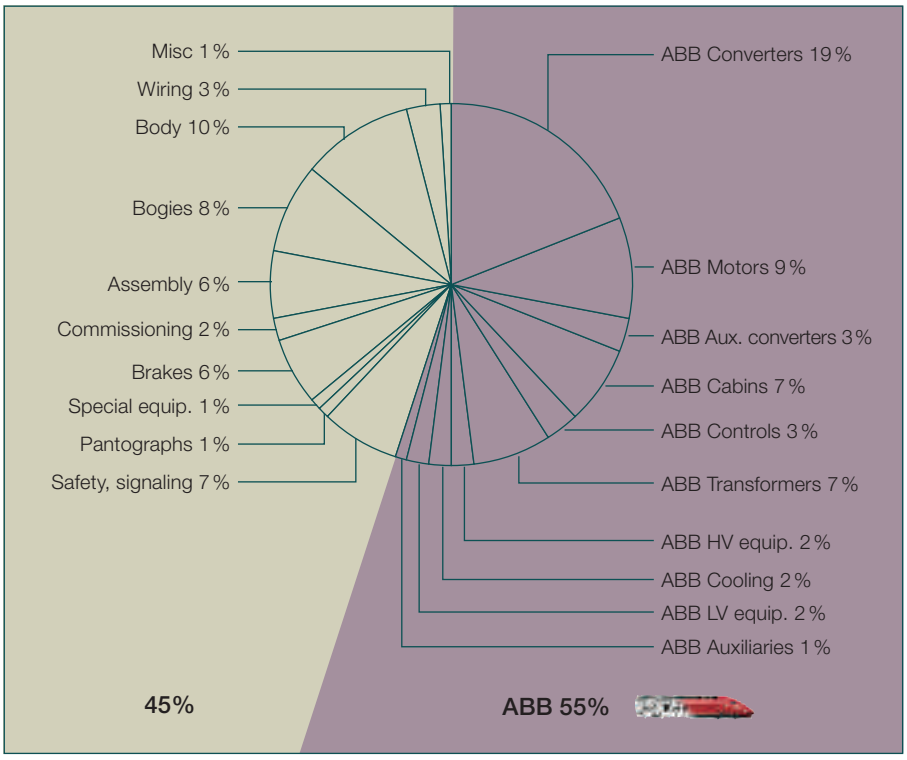
The supplier certification process benefits from being more precise, which contributes to higher product quality and shorter lead times. Collaboration is closer and stronger when fewer partners are involved – 'best experts' with 'best technology' allow a fast response to market changes. On the other hand, stronger reliance on a dramatically reduced supplier base could increase the risk of losing full control of component data and, ultimately, control of the design and cost. However, this does not have to happen, as ABB's Industrial^{IT} solution shows.

On track – with Industrial^{IT}

As already indicated, ABB is potentially able to supply more than half of a locomotive's components and subsystems to the rolling stock industry. These include the traction transformers, auxiliary converters, traction motors, protection, control and monitoring systems, switchgear, CPU board and I/O modules.

Industrial IT, the Aspect Integrator Platform (AIP) and product certification offer many new opportunities for structuring suppliers, systems, product information and catalogs, technical specifications, standards, certificates, drawings, reference lists, local contact addresses, and so on.

1 Typical cost structure of a locomotive. ABB can supply equipment equal to more than half the total bill of material.



[1)] Six Sigma is a disciplined, data-driven approach and methodology for eliminating defects (driving towards six standard deviations between the mean and the nearest specification limit) in any process – from manufacturing to transactional and from product to service.

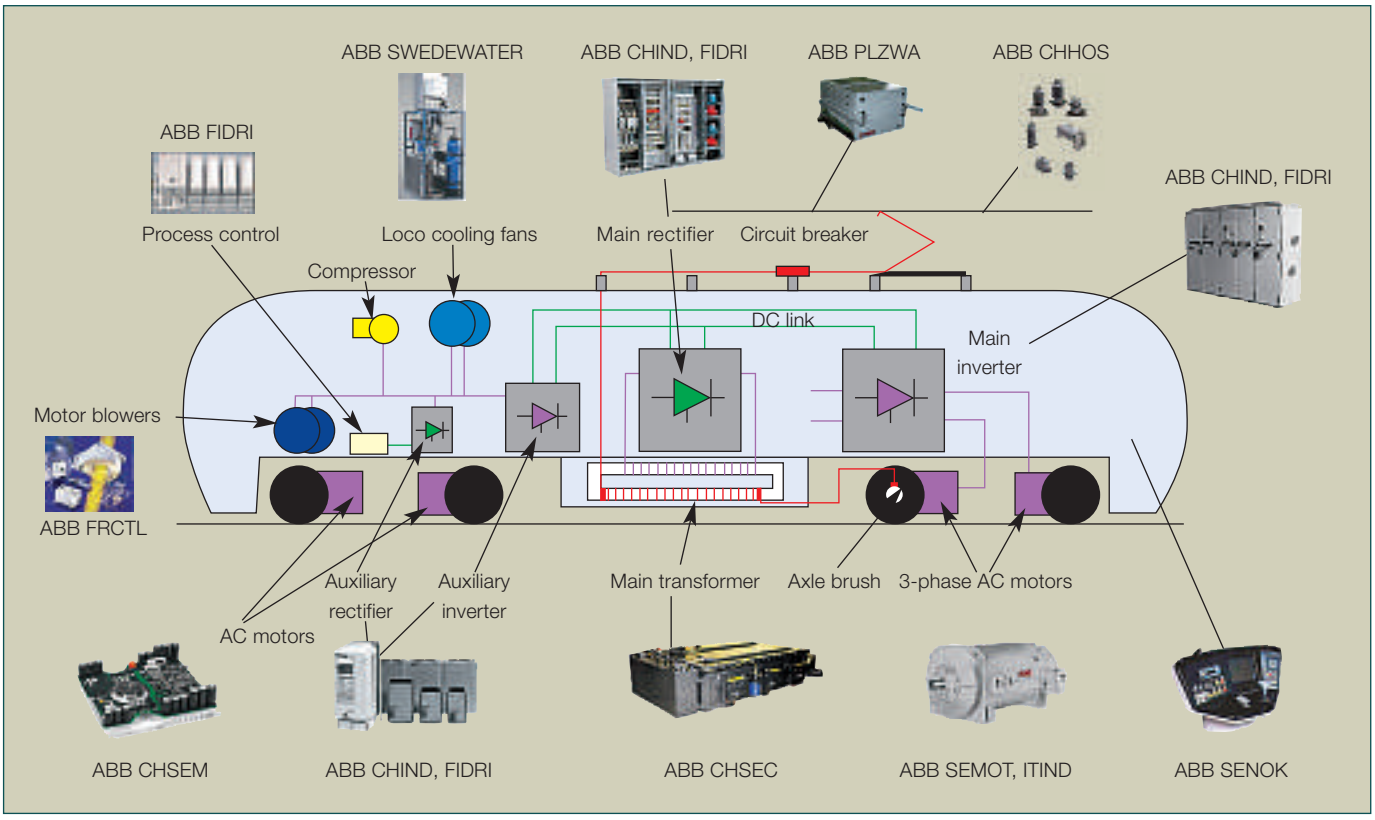
Industrial IT certification of the ABB product portfolio, together with AIP workplace and Plant Explorer navigation facilities, give ABB and its customers access to the same information, although the accessing structures are different in each case. Another easy way to get information about the products is via clickable images – AIP workplaces that are customized for specific purposes, such as sales, design, service or key account management. More comprehensive solutions can be developed for ABB customers, and all potential ABB offerings could be added to the system if required.

All aboard the 'virtual train'

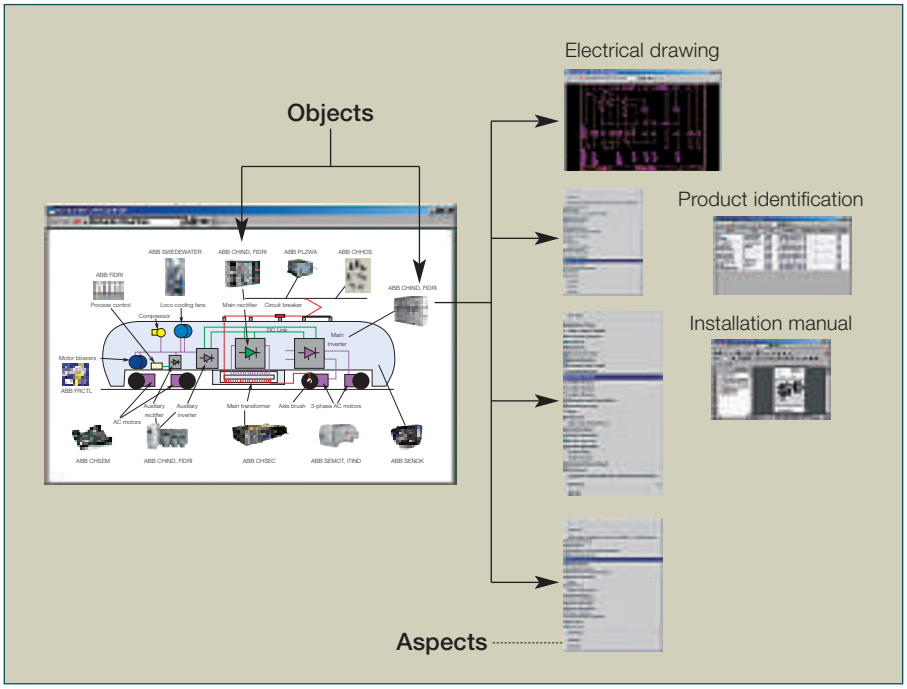
The first step in building a 'Rolling stock – ABB Industrial IT solution' is to create a 'virtual ABB train' 2.

The locomotive 'workplace' contains Aspect Objects representing real objects (products, components or subsystems) that could be delivered by ABB. A picture of each object can be shown on the screen, accompanied by a reference to the ABB business area or unit that manufactures that specific object.

2	The 'virtual train' – ABB model of a locomotive showing the equipment that ABB could supply



3	Navigation made easy. All relevant information is just one mouse click away.



A single mouse click on one of the objects, and up pops a list of Aspects leading to all the relevant information about that particular object. This can take the form of product identifications, electrical or mechanical drawings, installation manuals, and so on 3.

The information can be structured in different ways to suit users' various needs. If local content is a factor, as it often is in large-scale projects, the Plant Explorer can be used to access information about where what is manufactured. The user starts by clicking on 'Location' 4, and then goes on to choose a country and see which of the required subsystems can be supplied from plants in that country.

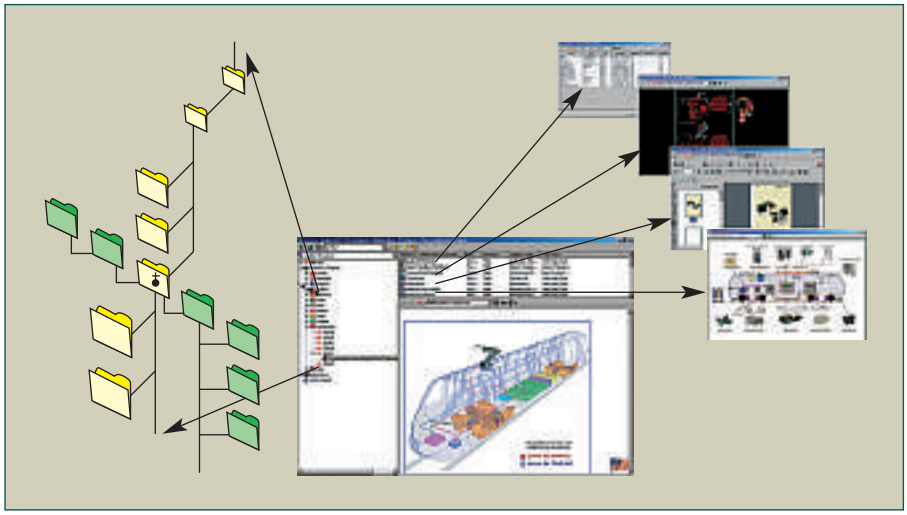
For example, by clicking on 'Switzerland' and then on CHSEC (ABB's transformer factory in Geneva) 5, the user is taken to the link to the Aspects of 'Traction Transformer Type 4.5 MVA'. All he has to do now is decide on the Aspects he wants, choosing from contact lists, drawings, maintenance manuals, and the like.

Alternatively, the user could start from 'Functional' 6, moving on to 'ABB Products' and then 'Traction Systems', where he will find the same transformer with all related Aspects.

Once the initial structuring has been completed and all the relevant Aspects and navigation paths are defined, the system can easily have capabilities added. The possibilities are endless: For example, to find out how the locomotive performs after delivery new Aspects can be defined, like data from sensor measurements or fault recorders, motor efficiency calculations, etc, in each case related to a specific subsystem. This information can be used to empower the maintenance engineer by letting him structure the information the way he wants it, and pick up daily or

> Information can be structured as needed. If local content is a factor, the Plant Explorer can be used to access information about where what is manufactured.

4	Navigation trees let users quickly and intuitively drill down to the information they need.



Plant Explorer	• Customized for user groups • Navigation by structures • Multiple structures (Functional, Location, Product, Orders,...)

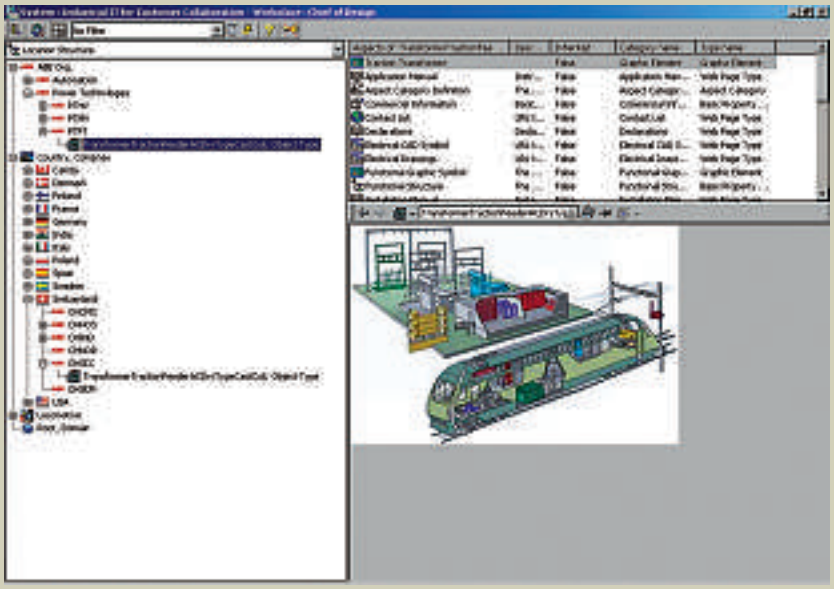
weekly curves and reports, just as he chooses.

And that's not all. Thanks to system interconnectivity, information useful to the train driver can be provided in real time. A consistent structure is guaranteed, too: The basic organization of the data stays the same from start to finish, so the information sent to the train driver is structured in the same way as that used by the sales and purchasing engineers, long before the locomotive was even ordered.

Getting up to speed

Both ABB and Bombardier personnel will use the tool described, beginning with service and design engineers and sales and key account managers. The response to demonstrations of the concept and functionality is very positive, and the tool has been well received. Customized views ensure the required relevance to the users' actual tasks in the organization, and allow them to access the information they need quickly and efficiently. Development of the software will continue as new requirements are identified.

5	Different users see the same information, but on specially customized views.

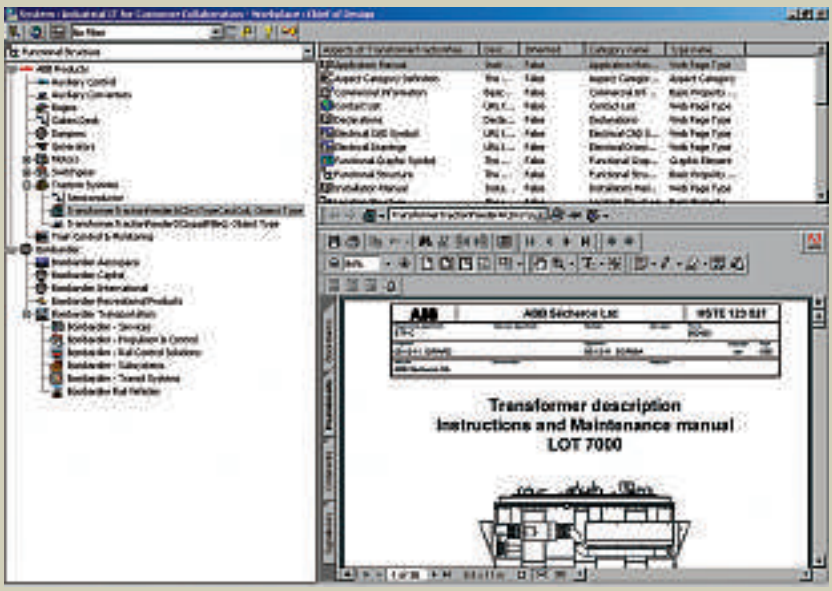


Tests with users worldwide have been successfully completed, and it has been demonstrated that as many as 24 users can access the system simultaneously. In addition to the web client access that users will have, two different CDs will be produced. One CD will have the complete ABB portfolio of products for the rolling stock industry. The other will list products that can be delivered instantly for specific locomotive projects. The CDs will be useful for remote users who need to use the tool whenever they cannot readily access the Internet. Both will use the ABB Aspect Object viewer to offer similar but limited functionality to the web client.

During the further development of the tool, priority will be given to capturing all available information on ABB rolling stock products, certifying the products and making sure they match Bombardier's requirements.

As the tool will be used both by ABB and Bombardier personnel, each company is setting up a team to ensure consistency as development of the tool continues.

6	A comprehensive set of Aspects provides all the necessary product information.



Destination in sight

Although a locomotive is a powerful im-

age and the benefits of the virtual locomotive shown in 2 are easily comprehended, it is not difficult to imagine it being replaced by, say, a ski lift, power boiler, paper machine, distribution grid or other item assembled by one of ABB's larger OEM customers. The modules prepared for Bombardier can easily be re-used for other applications. As Industrial IT certification progresses and more and more products and product families are integrated in the new tool, the easier it will become to re-create solutions like this one for other complex customer configurations.

> The 'virtual train' is just the start. Look out for the 'virtual ski lift', a 'virtual power boiler' or 'virtual paper machine'.

ABB and Bombardier Transportation sign five-year alliance agreement

The agreement, signed in late 2003 and potentially worth US$ 500 million, establishes a general framework for the business relationship and procurement transactions between the two companies. It is the first such agreement signed by Bombardier Transportation with any of its suppliers.

Under the terms, ABB will deliver railway components, such as traction transformers and motors, power electronics products and low-voltage apparatus.

A key target of the agreement is the reduction of cycle time to increase speed of delivery and maximize production efficiency. Operational units of ABB and Bombardier are already collaborating on design processes and moving toward closer communication and business processes.

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