

CONTACT

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The ABB India Magazine



ABB

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Dear Friends,

Indian industry is on the revival path after a quiet period during which most sectors were in capacity correction mode. Few would contend the fact that the metals industry is leading this charge with significant brown-field and green-field projects underway both in the ferrous and non-ferrous sectors and many more initiatives on the anvil. In addition to new capacities and expansions, there is also an increasing focus on parameters like scale, productivity, efficiency and quality as the Indian metals industry increases its international reach and strives for competitive advantage. Indian industry is fast realising that the business model is changing and to be a global force, we have to think beyond traditional paradigms. State-of-the-art automation technologies have a vital role to play in enabling all of these and other critical success factors. Seamlessly integrated process automation and systems are the need of the hour to facilitate real-time control and information, essential for effective decision making in an increasingly complex and networked world where speed is often the greatest competitive advantage.

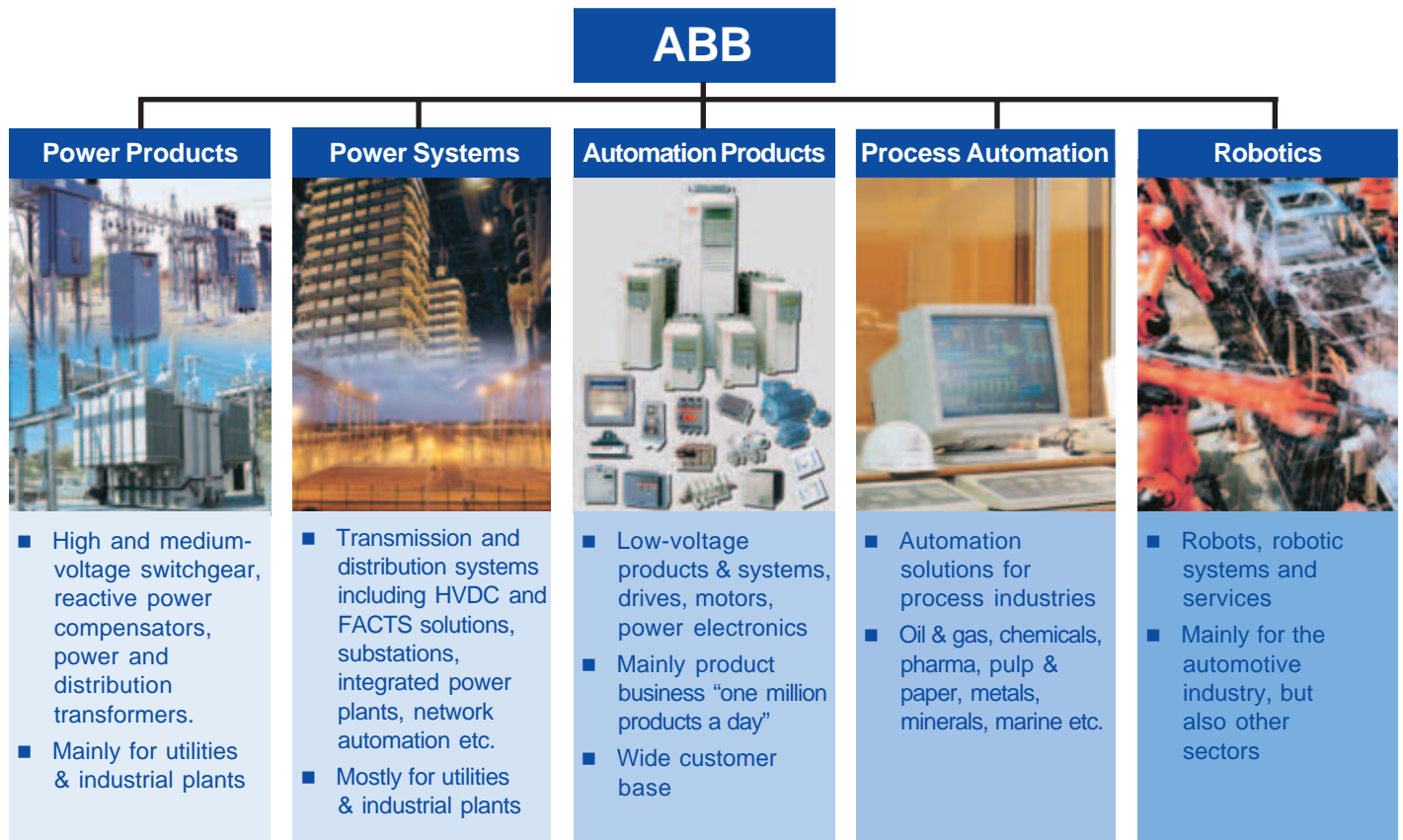
Metals is the theme for this issue of CONTACT and you will get a glimpse of ABB's domain expertise and technology offering in this sector. Besides this there are of course the usual features that bring you the latest on what is happening around the world and recent developments in India.

Yours sincerely,

Ravi Uppal

Vice Chairman and Managing Director, ABB India

ABB realigns organisation



Effective 1st January 2006

ABB Group recently announced new mid-term targets from 2005 to 2009 and outlined a strategy that emphasizes improved business execution and a broader approach to value creation, including focus on growth, operating margin, use of capital and cash generation. "We remain focused on our core power and automation businesses. This is an evolution of our strategy, not a revolution. ABB today is in a strong position and we can look forward to sustainable and profitable growth", said Fred Kindle, ABB's President and CEO.

To support the execution of the strategy, the two core divisions, i.e. power and automation technologies, are being replaced by their five respective business areas. The new divisions will therefore be Power Products, Power Systems, Automation Products, Process Automation and Robotics. A new position is being established at the Group Executive Committee (EC) level to drive execution of the new strategy across national and regional borders and facilitate the integration of marketing and technology across the

organisation. Dinesh Paliwal will head this new position as President, Global Markets and Technology. The regional managers, Group Chief Technology Officer and Head of Group Account Management for sales and marketing will report to him. He retains his roles as ABB Group Executive Committee member, CEO of ABB's U.S. operations and regional manager North America and Chairman of ABB Ltd. in India.

As part of the new organisational approach, eight regions have been defined to manage the business line and functional roles effectively across geographies and maximise synergies. Ravi Uppal will be the Regional Head, responsible for the South Asian region in addition to his current position as Vice Chairman, Managing Director and country manager of ABB in India. The major countries included in the South Asian region are India, Pakistan, Singapore, Indonesia, Malaysia, Thailand, Australia, New Zealand, Philippines and Vietnam. ABB operations in these countries, shall continue to function as independent entities.

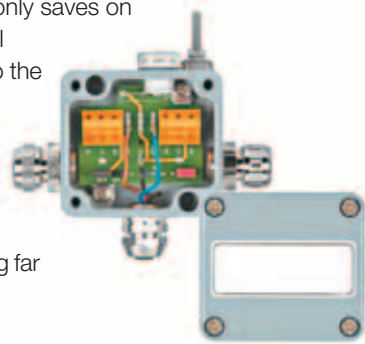
ABB helps automate...

...the world's largest nickel mine

ABB is helping New Caledonia's booming nickel mining industry by automating the world's largest nickel mine, Goro. New Caledonia has 25 per cent of the world's known nickel reserves, and a thriving mining and smelting industry that is an important source of income for the island's economy and its 213,000 population. The electrical equipment will be delivered in stages with most of the work being done in the switch rooms of Brisbane, Australia before delivery.

ABB Australia's composite offering for the project includes 690V MNS motor control centres, variable speed drives, switch rooms and low voltage distribution boards. ABB will also supply the Profibus that interfaces with the intelligent M102 relays and the VSD's.

This not only saves on traditional cabling to the process control systems, but also makes interfacing far easier.



...a steel plant in Columbus

ABB will supply a high-power rectifier system and two Static Var Compensator (SVC) systems for a steel mill to be built in Columbus, Mississippi for SeverCorr, LLC, which is owned by Severstal Group.

The steel mill will use an SMS Demag DC electric arc furnace powered by ABB to produce approximately 1.5 mt of rolled products annually. The high-power rectifier (ABB Thyribloc®), rated at 2 x 80,000 amp, 1,000 VDC, will convert AC utility power to DC as the primary power input to the arc furnace. The project also includes two SVC systems, one 160 Mvar EAF compensation system Arc-Comp® and one 100 Mvar rolling mill SVC. The SVC systems will provide the reactive power compensation to meet utility power quality requirements.

As part of its supply, ABB will provide its newly developed AC 800PEC equipment control platform incorporating Arc-Comp®, the first application of this technology in North America. The AC 800PEC is a high-end controller belonging to ABB's AC 800 automation family. It combines the high-speed control requirements of power electronics applications with low-speed process control tasks usually carried out

by separate PLC units. It is configured and programmed with Control Builder M and MATLAB® / Simulink® with Real-Time Workshop®.

A critical system enhancement offered by ABB is its Arc-Comp® system. While a conventional SVC reacts to changes of measured voltage and currents, the ABB Arc-Comp® system, because of a fast-forward loop from rectifier control system to SVC control system, adjusts in advance of actual system change which significantly improves performance of the compensation system with respect to network and furnace operation. With a stable network, DC voltage stability to furnace is improved which results in increased arc stability. Improved system stability results in higher production.



ABB powers...

...the world's largest integrated aluminum plant

Companhia Brasileira de Alumínio (CBA) is increasing production capacity by 35 percent at what is already the largest integrated aluminum complex in the world. Four ABB industrial substations, including the biggest substation ever to be installed in Brazil will help power this expansion. The entire production process includes refining the bauxite into alumina, reducing and casting the alumina into primary aluminium and manufacturing the aluminum into products like profiles and tubes, wires and cables, coils and tiles.

CBA increased production of primary aluminum at the plant from 340,000 to 385,000 tons earlier in 2005, and ABB supplied the substation for the finishing line. With capacity set to rise to 460,000 tons in 2007, ABB is once again the preferred choice. The 750-megavolt ampere (MVA) substation will be expandable to 1 gigavolt ampere (GVA) to facilitate future increases in production capacity. A 460/230 kV step-down substation, two 230 kV switching substations, and 230 kV and 460 kV transmission lines are also part of the scope.



...the fastest steel production line in China

ABB has recently signed a contract with Baosteel group to build a steel processing line with a speed of 1,040 meters per minute, making it the fastest production line in China, and the third fastest in the world.

ABB has successfully executed many projects for Baosteel group, one of the major iron and steel makers in China, including several Annealing and Pickling lines of the Baosteel Group Ninbo Baoxin Stainless Steel Company and an automation system modernization project on 2030 Skin-pass Mill.



...Peru copper mine

ABB received an order from the Sociedad Minera Cerro Verde in Peru for 14 ACS 1000 variable speed drives for its copper mine near the Andean city of Arequipa. Six ACS 1000 (3 x 600 kW, 3 x 1000 kW) will soft-start and control the speed of two conveyors and eight ACS 1000 will control pumps (4 x 1120 kW, 2 x 410 kW, 2 x 336 kW). Current copper production at Cerro Verde is approximately 100,000 tons per year. After the expansion, output is expected to triple to 300,000 tons per year and the life of the mine is expected to increase to the year 2040. Earlier this year, ABB had received orders from Sociedad Minera Cerro Verde for eight ACS 1000 variable speed drives for High Pressure Grinding Rolls (HPGR) and four gearless mill drives for ball mills.

800xA system helps protect Dutch from rough seas

ABB in Rotterdam is working with "De minister van Verkeer en Waterstaat" to update the operator interface of the "Maeslantkering", the final storm barrier of the Dutch "Deltawerken" to help protect the main port of Rotterdam and its inhabitants. The "Maeslantkering" consists of two giant doors - the structure of each door being as large as the Eiffel tower. In normal position they rest on the sides of the river. In case of emergency these doors can be positioned right inside the river to protect the land.

The barrier is in operation since 1997, being controlled by Advant Controllers. To safeguard the functioning of the system, ABB was selected to replace the operator stations and the information manager with a new operator interface. The new operator interface will be in the form of ABB's latest System 800xA with the well-proven AC400 connectivity.



The Maeslantkering with its two giant doors.

...high-speed trains in China

ABB motors will power the new high-speed trains between the booming cities of Guangzhou, Shenzhen and Zhuhai in the Pearl River Delta region of China.

Bombardier Transportation, the world's largest train manufacturer has selected ABB to supply 275 kilowatt high-powered train motors for 20 new high-speed trains that will run at 200 kms/hr. The 20 trains, each with eight cars, will link cities and manufacturing centers on both sides of the Pearl River with a single, high-speed railway from Hong Kong to Shenzhen in the east, through Guangzhou and west to Zhongshan and Zhuhai.

The two companies have entered into a long-term agreement where ABB will supply motors, traction transformers, power semi-conductors and other power and automation products.



Integrated EBoP solution

ABB recently received an order from the EPC contractor Cethar Vessels (P) Ltd. to provide a turnkey Electrical Balance of Power (EBoP) solution for a 43MW thermal power plant coming up at Sitapuram, Andhra Pradesh. The scope of supply includes the HV substation, generator unit and auxiliary transformers, MV and LT switchgear, control & protection, plant communication systems, emergency DC power system and cabling. The customer will benefit from ABB's vast experience and domain expertise and by procuring the total EBoP integrated solution from a single window. Power drawn from this plant will be supplied to the facilities of Zuari Cement Ltd. and Sri Vishnu Cement Ltd.



Keeping BSNL connected



Bharat Sanchar Nigam Limited, (BSNL) one of India's leading telecommunication players has entrusted ABB to provide integrated building solutions including access control systems, CCTV and Building Automation for their Head Quarters building in New Delhi.

The Integrated Building Automation System includes control of equipment like air-conditioning and ventilation systems in the entire complex, pumps, DG sets, lighting, etc. The 14-storeyed building will have a climate-control system comprising of primary and secondary pumps, air-handling units and treated fresh air units, 3 chillers and 2 VAMs. The scope of work includes design, supply, installation, testing, commissioning and maintenance of these units.

In terms of access control systems, the entrances to the building on all 14 floors are provided with sensor-controlled automatic locks. Status of all the doors will be displayed on a central control station. Date and time will get recorded whenever any door is opened or closed. As a part of the CCTV system, cameras are installed in areas that require continuous monitoring.

Clean room technology for Max Hospital

Max Healthcare, is setting up a multi-specialty hospital in Delhi. To be built in two phases, the 800-bed hospital will have ten operation theatres and is spread over an area of 4,70,000 sq. ft.

ABB will provide 'Clean room technology' that ensures minimal noise level, CO₂-free air circulation, prevents cross-contamination and ensures airflow conducive to quick and effective dust removal ensuring adequate freshness. ABB's scope of work includes air-conditioning and ventilation systems for the entire complex including wards, laboratories, operation theatres, lobby and waiting rooms. Equipment supply will include 900 TR (3 x 300 TR) water-cooled screw chiller, condenser water pumps, primary chilled water pumps, hot water pumps, air-handling units, fan coil units, ventilation fans and cooling towers.



Robotics Service & Training Centre, set up in Pune

In order to serve the growing customer-base in and around Western India, ABB in India recently inaugurated a Robotics Service & Training Centre in Pune, Maharashtra.

A presentation on ABB's Robotics philosophy highlighted the company's approach towards value-added services such as productivity improvement & consulting and going beyond essential

services like spare-parts, logistics, training & field service.

The Robotics Service & Training Centre will impart training on ABB robots, and service the demand for spare-parts and services to customers in the region. It has a training room equipped with an IRB140 robot and the latest version robot controller, IRC5.

There is also a stock room for spare parts, and workstations for four service engineers.



ABB India enhances rectifier presence in SE Asia

The Power Electronics team of ABB India has recently been entrusted by The Thai Organic Chemicals Company Limited to supply a rectifier system for their caustic soda plant in Thailand. Thai Organic Chemicals Company Limited (TOCCL) is a part of the Aditya Birla Group in India. Recent successes in this domain include Indian Aluminium Limited (INDAL) and Grasim, where ABB has supplied complete rectifier systems and solutions.

ABB has designed, engineered and supplied a 16.5 kA, 490V DC Rectifier System for TOCCL's Caustic Soda Plant at Rayong, Thailand.

Completion of Jindal Power Project in record time

ABB successfully took up the challenge of meeting Jindal Power's requirement to complete the turnkey construction of substations and transmission lines for their upcoming 4 X 250 MW OP Jindal superthermal power plant near Raigarh in Chattisgarh within six months.

The substation design is based on compact and modular structures. Phase I of the project included design and construction of 11 bays of 33 kV outdoor main switchyard, seven 33 kV remote-end bays and 15 kms of 33kV single/double circuit transmission lines, Phase II comprised 4 bays of 33 kV outdoor switchyard and 40 kms of 33 kV double circuit transmission lines.



AIA embarks on Industry Vertical Seminars

In keeping with its vision of facilitating global competitiveness of Indian Industry, the Automation Industry Association of India (AIA) conducted Paper Tech 2005, a seminar on automation in the Pulp and Paper industry. Paper Tech 2005 provided a forum for information and knowledge-sharing on the development and deployment of automation technologies across users, consultants and technology providers. All major industry players and over 100 delegates from large, medium and small paper companies attended the event.

In the inaugural address, Pradeep Dhobale, Chief Executive, ITC Ltd, Paperboards & Specialty Papers division stressed on the increasing relevance of automation in the Indian Pulp & Paper Industry and shared ITC's experience in maximising gains through automation. Kasi Viswanathan, President IPPTA, Pres. (Operations), Seshasayee Paper & Boards Ltd delivered a keynote address. The speakers included both automation technology providers as well as representatives from the industry, providing an overall perspective.

Many industry leaders presented in-depth case studies on the role of automation in their process. Among them were OP Goyal, Director JK Paper, CN Sudarshan from Seshasayee Paper & Boards, CS Panigrahi, CEO of Voith Ltd and Victor Anandaraj from TNPL. R R Vederah, JMD, Ballarpur Industries Ltd. (BILT) presided over the plenary session.



The founding members of AIA include the leading automation technology players in the country like ABB, Emerson, Siemens, L&T, Honeywell, Rockwell, Yokogawa and Invensys.



In line with its initiative to focus on industry verticals AIA is organising a similar event for the metals and mining sector to be held in Kolkata on 25th November (www.aia-india.org)

CIGRE Colloquium on HVDC, FACTS and emerging technologies

The Committee for CIGRE India organized a week-long event in Bangalore recently which included tutorials, study committee and working group meetings as well as a colloquium on "Role of HVDC, FACTS and Emerging Technologies in evolving power systems".

Speaking at the occasion, Mr. Ravi Uppal, Country Manager, ABB India emphasized on the need to leverage innovative and modern technologies and stressed on 'quality systems and products' for catering to the enormous power needs of the country.

The event also saw the release of the "Reliable fault-clearance and back-up protection of EHV and UHV transmission networks" a manual by Mr. Yves Fillion, President of CIGRE. Published by the CBIP, (Central Board of Irrigation and Power) this manual is the result of a working group formed in 2001 with members from major utilities relay manufacturers and academic institutes chaired by Mr. Babuji Palki of ABB India.

ABB was one of the main sponsors of the event and experts from the company presented papers on various aspects of HVDC and FACTS technologies. The event also showcased a computer-demo on FACTS (Flexible AC Transmission Systems) as well as visual graphics of the recent HVDC Vizag and TCSC Raipur projects executed by ABB in India.

CIGRE (International Council on Large Electric Systems) is one of the leading global organizations on electric power systems. Founded in 1921, it aims to develop and facilitate exchange of engineering knowledge and information in the fields of power generation and high-voltage transmission of electricity.





Introducing REM600 range of relays



ABB recently expanded its range of electrical relays with the addition of a new multi-function protection device for medium and large MV asynchronous motors.

Protection

The new range of REM600 relays are designed primarily for motor applications ranging from 500kW to 2MW. Part of this range, the REM610 motor protection relay, features a host of integrated functions for protection against motor damage. It handles fault conditions during motor start-up, normal operation, idling and cooling down at standstill, for example, in pump, fan, mill or crusher applications. The REM610 is suitable for use in both circuit-breaker and contactor controlled-drives. With single, two and three-stage overcurrent and earth fault protection functions as well as thermal overload protection, it is also ideal for feeder cable and power transformer applications.

High availability

The REM610 comes with a built-in disturbance recorder that records instantaneous or RMS values of measured signals via four analogue channels and up to eight user-selectable digital channels. With its non-volatile memory, it records fault data and reports it, even after

auxiliary power failure. This, combined with a long mean time between failure (MTBF), enables the REM610 to offer high availability.

User-friendly configuration

Three fixed and eight programmable LEDs enable fast fault-indication and location. A new interface on the REM610, featuring push buttons and an LCD display makes it easy to select and view data in seven languages, ranging from details of recorded faults to current and temperature measurements and historical data. A user-friendly graphic configuration tool enables users to set up application-specific configurations.

Remote monitoring and communication

Users can program the relay by using the push buttons on the front of the unit, via serial communication with a computer connected to the communication port, or remotely through a control or monitoring system connected through the unit's serial communication bus. The REM610 features a range of communication options, including SPA-bus slave, MODBUS and IEC 60870-5-103 and also wireless communication with a laptop computer if required.

Easy on installation and maintenance

REM610's compact size and small mounting depth makes it ideal for retrofits and confined space installations. Its withdrawable 'plug and play' cassette design makes it simple to fit and remove, helping reduce downtime required for installation, testing and maintenance. Based on two separate units, this design automatically closes off the current transformer when the unit is removed, enabling work to be carried out safely, without shutting off the supply.

Introducing 245 kV transformer bushing

The development and type testing of 245kV transformer bushing has been successfully completed as per IEC:60137 and IS:2099. The state-of-the-art range of transformer bushings available from ABB comprises of 72.5, 145 and 245kV ratings. The 245kV bushing is designated as GOM 1050 1600. Having passed stringent dry (900kV peak) and wet (725kV peak) switching impulse tests as per ABB's global standards makes the product suitable for high-end applications



Indian Industry must leverage automation technologies

We caught up with Veli-Matti Reinikkala Head-Process Automation, ABB Group, during his recent visit to India. Here are some of his thoughts on the future of Indian industry



Is this your first visit to India ? What are your initial impressions?

I have been to India once before. I see a lot of potential in India and the people are very enthusiastic. There is, of course, some way to go with reference to developing the infrastructure. Seeing the economic fundamentals, I believe the macro-growth is sustainable. On the whole I get a very positive feeling and a sense of optimism that India will stake its claim in the emerging global economic order along with China.

How do you see the industrial landscape developing in India?

After a quiet period during which we saw over-capacity being balanced out with demand pickup, industrial growth in India is once again on an upswing and in fact in double-digits now. In addition to efficiency improvements we are also seeing brown-field and green-field capacity additions in many sectors like steel and non-ferrous metals, pulp & paper, pharmaceuticals, cement etc. India has many natural resources and a booming construction sector so industrial investments are likely to continue. Moreover, besides the raising of productivity standards thanks to the entry of global industry players in India, Indian entrepreneurs are also beginning to think beyond the Indian market and are gearing up to play a bigger role in the world economy. Companies like ABB have a key role to play in facilitating this effort.

What is the role of process automation in helping Indian industry become globally competitive?

As India's economic growth gains momentum it can be sustained only if the manufacturing sector grows at a steady pace and leveraging state-of-the-art automation technologies can facilitate this. Industry will have to rise to the global challenge by addressing issues like productivity, efficiency, cost of operation, quality, functionality, consistency, methods of production and aesthetics in order to gain 'competitive advantage'.

Historically, automation in India has been seen more as a shop-floor tool than a 'business performance enabler' but I can see that this is changing now. Also there has been a belief here that 'cost advantage' lies in lower labour costs but this attitude is also fast changing. It must be mentioned here that automation is not about replacing humans as often perceived but about complementing human skills and efforts in a balanced manner. It's about facilitating processes, enabling measurement & control, ensuring optimum efficiency, increasing productivity, maintaining consistency and quality etc. While the Indian industry has accepted and is adopting enterprise solutions for business processes, it is yet to recognize the full potential of manufacturing automation and 'collaborative systems'.

Business decisions can be greatly facilitated through automation, by allowing measurement, control and reporting of key performance indicators (KPI's) required as a 'dashboard' to monitor, manage and control production and enterprise operations. It helps provide real-time information to decision makers about the health, efficiency, and effectiveness of shop floor operations, where true value creation takes place. Automation can also help manufacturers track and improve plant and enterprise productivity and performance through Real-time Performance Management (RPM) - integration of real-time manufacturing data with real-time cost data for achieving operational excellence (OpX).

"If you can't measure it, you can't control it".

The world's leading Automation Technology providers are well established in India, so access is certainly not an issue. Now it's up to Indian entrepreneurs to take full advantage of the latest technologies on offer and leverage them to gain competitive advantage.

Tell us something about the recently introduced System 800xA technology from ABB and other future developments

By removing the barriers of traditional Distributed Control Systems (DCS), the 800xA system supports the platform, application, and professional service needs of total plant management and control. It dramatically improves plant-wide productivity through the following powerful, integrated core functions.

With System 800xA, customers have the ability to extend the automation reach of their present system to enjoy new levels of productivity. It provides the flexibility to implement the functions these customers require today and the agility to add others as needs evolve.

The system dramatically improves plant-wide productivity by providing integrated core functions such as Operations, Engineering, Information Management, Batch Management, Asset Optimisation, Control & I/O and Fieldbus (Field Device Integration).

Around 800 engineers from around the world worked on its development including 50 research engineers from ABB's global Corporate Research Centre in Bangalore.

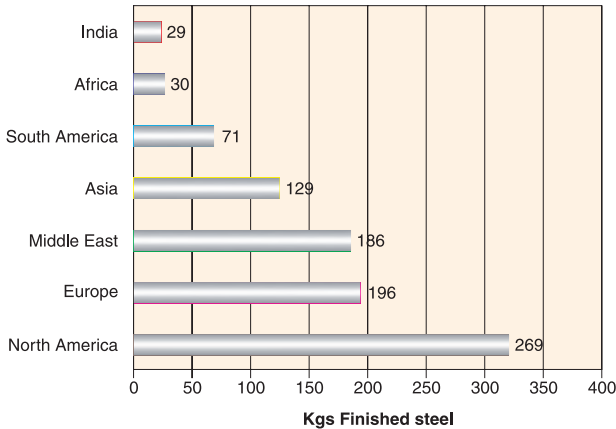
I think that with the 800xA, we have really 'cracked it'. In the near future, we will address new *applications* of 800xA rather than develop alternatives. In other words, we will use the customising features available in the 800xA to make it adaptable to more and more applications. Going forward, the DCS platform, which incidentally is also the base for the 800xA, is the one we will continue to use.

Metals on the Move !

As India integrates with the world economy, Indian industry is staking its rightful claim in the emerging global order. Indian entrepreneurs are fast coming to terms with the fact that 'factor advantages' are no longer enough to sustain competitive advantage. The 'complete value proposition' today, encompasses several key parameters including price, quality, productivity, efficiency, aesthetics, delivery systems etc. and state-of-the-art automation technologies have a vital role to play in enabling these.

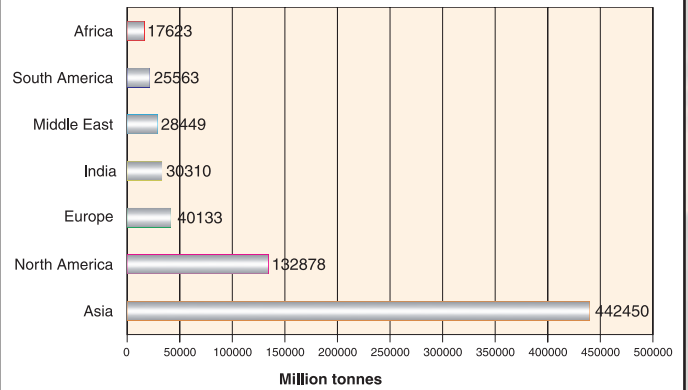
Metals & Minerals are among the fastest growing sectors in India today, with significant brown-field and green-field projects underway both in the ferrous and non-ferrous segments and many more initiatives on the anvil. In addition to new capacities and expansions, there is an increasing focus on productivity and efficiency as the Indian metals industry increases its international reach and strives for competitive advantage. This theme feature focuses on the metals sector and provides some useful insights on the market, capacity build up, some success stories and ABB's technology offering to the sector.

Apparent Per Capita consumption of finished steel - (2003)



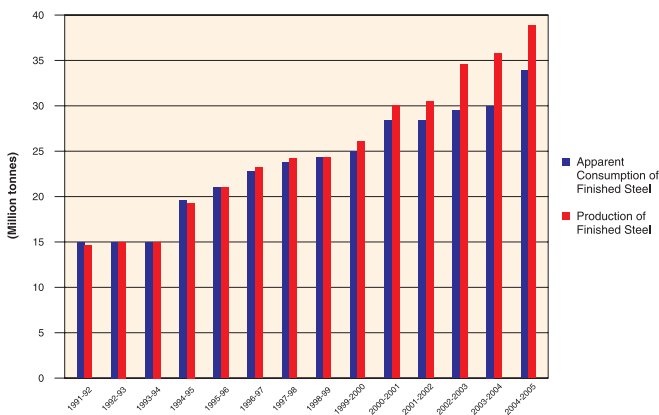
Source - Steel Statistical Yearbook 2004, International Iron and Steel Institute

Apparent Consumption of Finished Steel (2003)



Source - Steel Statistical Yearbook 2004, International Iron and Steel Institute

Consumption and Production of Finished Steel in India



Source: www.steel.nic.in

China Vs India Metal Consumption

	India	China	China & India as% world
Steel (mt)	35	320	35
Aluminium (mt)	0.9	6.3	24
Nickel (000t)	30	143	13
Copper (mt)	0.3	3.3	22
Iron Ore (mt)	59	406	37
Bauxite (mt)	5	29	21

Source: World Bank, Statistical outline of India, China Statistical Year Book, CLSA Asia Pacific Markets

ABB in Metals

eBusiness Financial Services

Production Planning & Scheduling

Service

Customer Oriented Plant-Wide Solutions

ABB eBusiness solutions can provide reduced transaction costs, improved business models and structured finance

Products and services for the complete plant life-cycle from concept to delivery
Seamless integration from device to enterprise for real-time order fulfillment

AC and DC drives system
Rolling mill drive control
Advance process control
On-line set-up models
Optimization services
Advanced on-line sensors
Electromagnetic stirrers and brakes
Production control and tracking

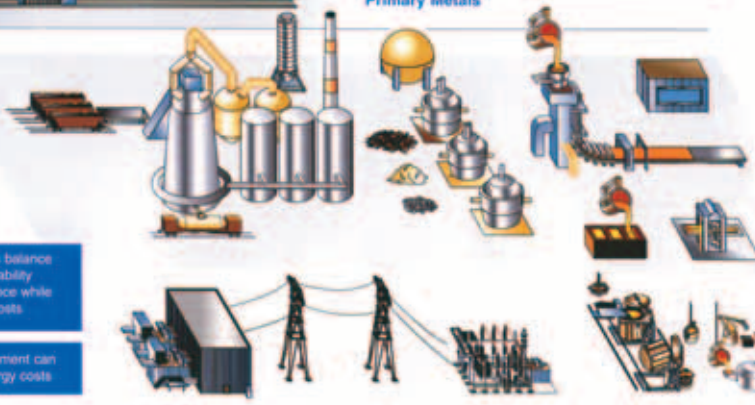
ABB electromagnetic stirrers and brakes provide benefits in terms of reproducible and profitable production as well as product quality

ABB Operator Interface provides real-time unified information to run the plant quickly, easily and cost effectively

ABB Power Products balance your operational, reliability and safety performance while reducing operating costs

ABB Energy Management can provide reduced energy costs

ABB robot solutions for higher productivity



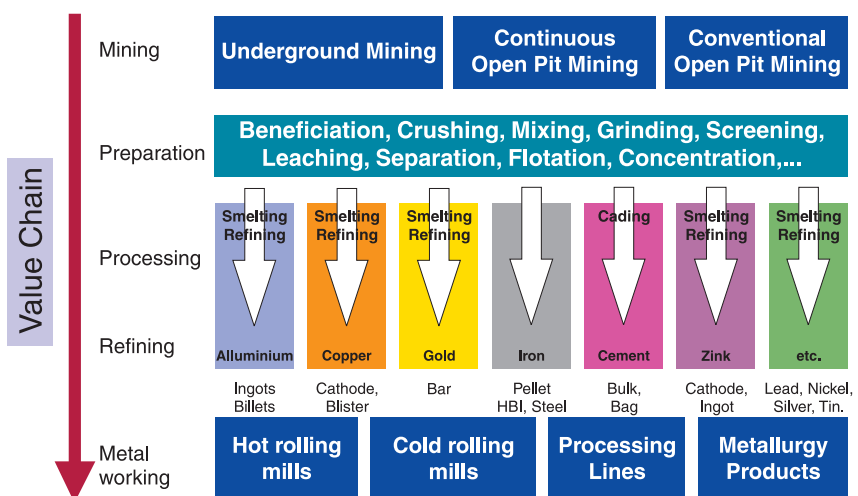
Power Plant

Foundries and Forming Plants

Hot Rolling M

Rod and Bar Mill

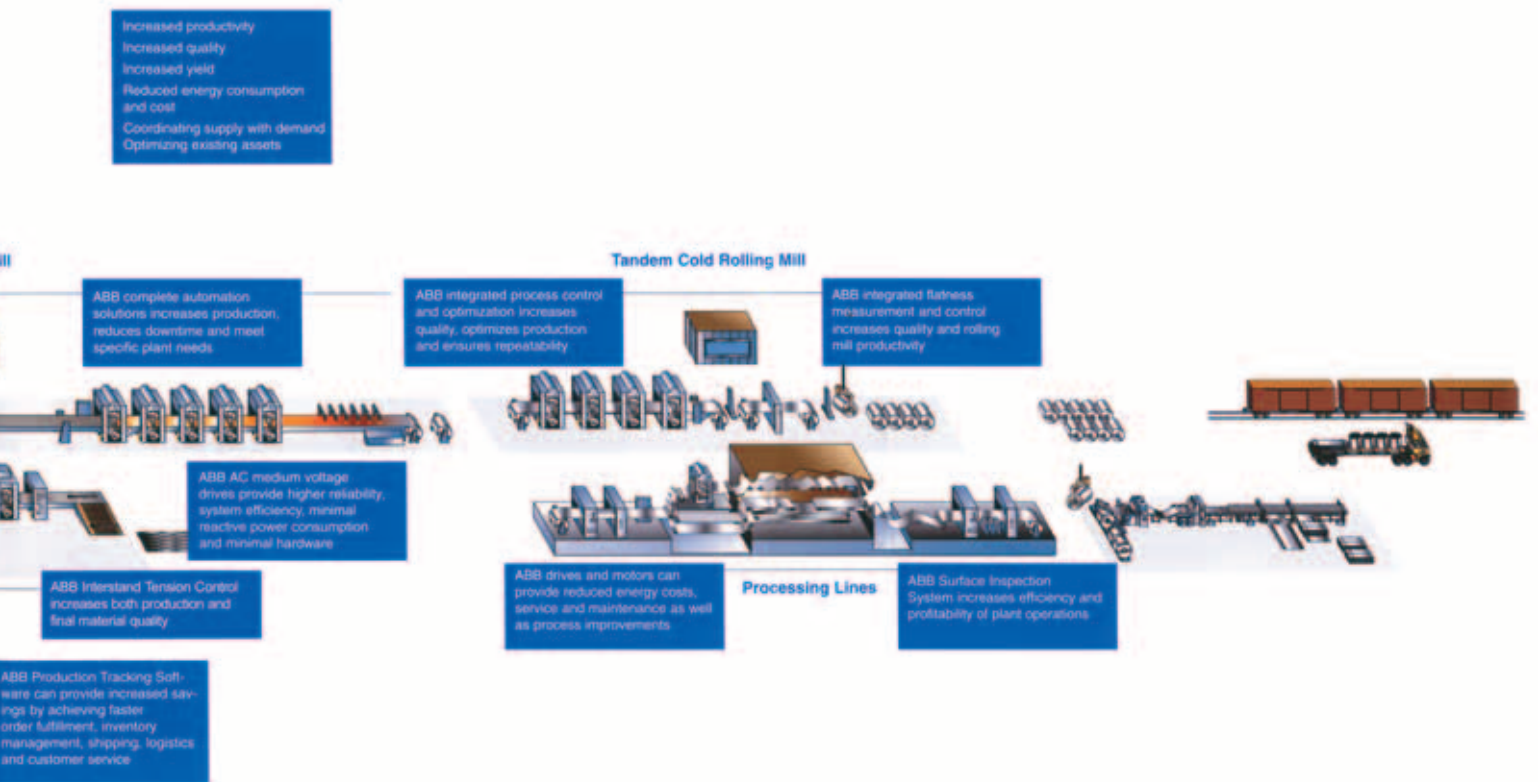
ABB serves the metals industry across the value chain



Markets and processes served

- Open pit and underground mining
- Cement manufacturing industry
- Bauxite beneficiation, alumina refining
- Minerals processing for production of cathodes, and ingots
- Open pit and underground mining
- Meltshops and casters of steel blooms
- Melting and casting - upto finished products
- Hot rolled coil - upto finished products
- Hot rolled coil to cold rolled coil, including pickling, annealing, and tempering
- Cold rolled to coated steel, i.e., all galvanizing, painting, coating, tinning
- Profile rolling mills
- Road and railway tunnels

and Minerals



ved:

ing & primary aluminum smelting
of ore concentrates, pellets, DRI/HBI,

oms, billets and slabs
products - for non-ferrous metals & alloys
cts - stainless steel
cluding all types of rolling mills,
lines
types of processing lines for
ng, cutting, slitting, etc.

A complete range of offering for Plant and Process Requirements

Engineering, Supply, Construction, Management, Service

Power Distribution	Drives	Industrial IT	General	Services
O/TL's	Gearless Mill Drives	OCS	Cabling	Erection
HV-Substation	HV/LV Motors	IMS	Grounding	Supervision of Erection
MV/LV Switchgear	AC/DC Drives	Optimization Packages	Lightning Protection	Training of Personnel
Transformers	Multi-Drives	Instrumentation	Lighting	Commissioning
DC Power	Rectifiers	MCCs	Ventilation Air-Condition.	Operations Assistance
Emergency Power	PF Correction	Application Software	Communication	Life Cycle Support

On the Tin trail...

It goes without saying that metals is a sector very much in focus today and hence chosen as the theme for this issue of CONTACT. While we all get to see, read and hear a lot about the so called 'stalwart' metals like steel, aluminium, copper etc. we rarely see much on the humble 'tin' and yet this is a metal that touches all of us in our everyday lives. So we decided to bring you an exclusive customer interview with the Kingpin of Tin himself and caught up with Mr. BL Raina, Managing Director, Tinplate Company of India Ltd. (TCIL), India's leading player in the sector. In 1997, Tata Steel under the stewardship of Dr. JJ Irani appointed BL Raina as Managing Director of the company with a mission to 'fix it' or 'axe it'. The rest, as they say is history – a turnaround story that is even taught as a case-study at IIM-Ahmedabad, recognised among the leading management institutes in the world.



BL Raina

Managing Director, Tinplate Company of India Ltd.

- Born: 1944
- Wife : Lata (involved in social responsibility initiatives) ;Son: Computer Engr. ; Daughter : Electronics Engr. (USA)
- Education : Mechanical Engineer ; PGDM Business Mgt. XLRI ; General Management Programme CEDEP (INSEAD), France
- Experience 35 yrs - Production, Maintenance, Marketing with Tata Steel /Associate Companies. Prior to taking over as MD TCIL, he looked after International Trade at Tata Steel
- Hobbies : Golf
- Management Mantra : Actions speak louder than words

What are some of the common applications of this metal ? Tell us something of the market.

Tin is mainly used for packaging of processed edibles (eg. oils, beverages, fruits, dairy products, baby foods etc.) and also for chemicals, paints, aerosols, talcum powder, battery jackets, crown caps, closures etc.

Globally, tinplate production is around 12 to 14 mtpa. The world per capita consumption is 9 -10 kg. , in China it is 1.5 kg and in India as low as 0.4 kg. India's total consumption of tin is about 350,000 tpa of which, nearly half of it is imported. Some of the key advantages offered by tin as a packaging medium includes ultra-violet ray and bacterial protection, aroma and flavour retention, eco-friendliness, longer shelf-life, pilfer and tamper proof, excellent printability for branding etc.

The only indigenous producers of tinplate in India are TCIL (original capacity 90,000 MT now 110,000 MT) and SAIL's Rourkela plant (capacity 150,000 MT). TCIL has improved its domestic market share from 18 per cent in the late 1990s to 35 per cent presently, by focusing on quality improvements and shifting to a thinner product mix with increased value addition.

Could you share with us the origins of your company and the early years

Prior to the First World War, India's supply of tinplate came primarily from South Wales in Great Britain. Maritime trade between the two countries was disrupted by the war and in order to address the shortfall Tata Steel and Burmah Oil formed a joint venture named the Tinplate Company of India Ltd (TCIL), incorporated in 1920 at a site called Golmuri in Jamshedpur. The first steel plate of Tinplate gauge was rolled on 18th Dec 1922 from the Hot Dip Plant (HDP) producing Hot Dip Tinplate from tin bars supplied by Tata Steel.

Notwithstanding some capacity enhancements, the business model of the company remained the same and over a period of time, it started to lose out in a market where tin-substitutes like PET, paper, Tetra Pak etc. started to gain ground. Instead of struggling alone to increase its share of an uncertain pie, TCIL joined hands

with the other members of the value chain to form the Tinplate Promotion Council (TPC) comprising TCIL, its promoter Tata Steel, the only domestic competitor, SAIL and 12 major can fabricators.

Could you tell us something about TCIL's business profile, products and processes

Headquartered in Kolkata, Tinplate Company of India Ltd. (TCIL) has its manufacturing facilities at Jamshedpur in the newly constituted state of Jharkhand . TCIL is primarily in the business of providing cost-effective metal packaging solutions for edible and non-edible products. We manufacture various grades of electrolytic tinplates, tin-free steel sheets and Full Hard Cold Rolled Sheets (FHCR) used for metal packaging. One unit produces electrolytic tinplate (ETP) and tin-free steel (TFS), and the other is the cold rolling mill (CRM). The company's ETP line operates at as high as 126 per cent of its nameplate capacity (90,000 MT) while the capacity utilization of CRM is over 115 per cent of its rated capacity (1,20,000 MT). TCIL gets its basic raw material in the form of hot rolled (HR) coils from Tata Steel which it converts to tin mill black plate coils and the ETP/TFS makes tinplate from these. To keep pace with technological developments, TCIL was the first to set up a combination line capable of producing both Electrolytic Tinplate (ETP) and Tin Free Steel (TFS) in 1979. Before being tin-plated, coil has to be trimmed to the required width as per the customer's order and then passed through the CPL (Coil Preparation Line) with edge trimming facility. The unique properties of tin provide a coating on the steel that protects the contents, while providing the steel with an attractive appearance, corrosion-resistance and ease in bonding, welding and painting. Tin is applied to both

sides of the black plate coil through an electrolytic process. Typical applications for electrolytic tinplate include food and beverage containers, paint trays, battery tops and paint, varnish and aerosol cans. The ETP Line takes care of this process. We produce mainly four types of tinplate – Oil Can (OC), General Line (NOC), Open Top Sanitary Can (OTSC) and Tin Free Steel (TFS).

Could you elaborate on the ground covered since you came on board and your future vision

Over a period of time, production processes and technologies deployed at TCIL became outdated and obsolete. The operations were highly labour-intensive and productivity was abysmally low. The company was bleeding financially and for all intents and purposes, its promoters were on the verge of writing its epitaph in 1997.

In the first year after my taking over the helm at TPIL, the company incurred a loss of 620 MINR with 5000 employees on the rolls. Today, the workforce is about 1500 people and the company had a real turnover (after taking into account the fact that the company has captive inputs from its parent company) of 7.5 BINR in 2004 with a target to reach 9 BINR in the current fiscal and margins in the range of around 15 per cent and a positive EVA (Economic Value Added). The Company is also exporting to specific-end users in niche markets in SE Asia, West Asia and Europe and exports, earlier inconspicuous now account for around 25-30 per cent of volumes.

Tin as a packaging medium has tremendous potential for growth, especially as we grow our agri-based and processed food industry in the country. The market is expected to grow in excess of 15 per cent CAGR over the next few years and tinplate demand is expected to be between 420,000 MT and 530,000 MT per annum by 2010. TCIL today, is the largest indigenous producer of tin-coated and tin-free steel sheets in India, enjoying 35 per cent market share. We plan to double our capacity by 2007-2008 and foresee setting up another green-field plant in Jamshedpur.



Tell us about some of your recent initiatives to improve plant operations

Over the years, TCIL has been driving excellence in operations through a series of strategic interventions. This has resulted in breakthrough improvements in productivity parameters, many of which are now close to international benchmarks. The Company is now working with Japan Institute of Plant Maintenance (JIPM) for implementation of Total Plant Maintenance (TPM) program and the Company has been cleared for the TPM Award in October 2005 by JIPM. During FY 04-05, both the Cold Rolling Mill (CRM) and Electrolytic Tinplate plant (ETP) achieved record performances, with a production increase of over 10 per cent. The ETP production was 140,665 MT (2003-04 : 127,984 MT) and CRM production was 167,217 MT (2003-04 : 54,211 MT)

Product / market development efforts have also been intensified. Thinner products are being introduced and innovative solutions developed. Earlier this year, an innovative 'three-tier tea caddy' we fabricated, received the *Best CAN Award* in the 'Food' category during an International Steel Packaging Congress organized by the association of major European steel producers, in Germany.

TCIL has also been focusing on technology and capacity expansion for the past few years in collaboration with Tata Steel and Nippon Steel, Japan. During 2003-05, the company invested significantly and is now in a position to consistently operate at a scale of 145,000 MT per annum.

Based on your experience, what are ABB's main strengths and areas you would like more focus

One of my early memories of working with ABB dates back to 2002, when they were the only ones willing to take up the challenge of replacing a PLC system within 4 days, on a line we were refurbishing and could not afford to shutdown any longer. They accomplished the mission in record time and we were impressed with the technical competence and excellent support. This led us to work with ABB on several subsequent projects.

On a corporate level I must compliment the management and leadership for being extremely customer-focused and establishing durable relationships. We at TCIL have an ambitious growth vision and I feel we have a bigger date with ABB in the years ahead.

In terms of key strengths, the technology and user-friendly design features e.g. operating panels are exemplary and we feel that ABB delivers value in terms of its products, solutions and specialized support. As quality awareness increases and our product gets thinner, we would like to see more exacting technologies for thickness controls. We would also like to see more intelligence being added to products and advanced diagnostics technologies with reference to electronic-fault detection. Facility management solutions is another area where we could work together in the future.

ABB and TCIL

- 2002 : Revamp of DC Drives & Automation in ETP (Electrolytic Tin Plate) line completed in record time (shutdown of 4 days)
- 2004 : Revamp of DC Drives and Automation – Coil Preparation Line (CPL)
- 2005 : Electrics & Automation to increase the speed of the existing ETP Line (scope includes Reflow Electrics, Plating Converter, RMC, DC Motors & ACS800 Inverters)

Aspects of productivity

Nils Leffler, Peter Terwiesch



Manufacturing is all about transforming capital, raw materials, energy and labour into products and services for customers. For societal as well as political reasons this has to be accomplished within certain environmental, safety and regulatory constraints. And there are cost-drivers to consider, like the production plant itself and market prices for materials, personnel and energy.

Manufacturing companies that want to improve their bottom-line performance can no longer rely on the 'easy pickings' of the past. New strategies are called for. The total refurbishment of a plant or moving it to a lower-cost country are two, albeit capital-intensive options. But there is another way for plant owners to achieve the competitive edge they are seeking: by improving the productivity of existing manufacturing equipment. Since the opportunities to do this are most likely to be found in complex process areas, more sophisticated optimization tools are needed. These tools are on the way.

A manufacturer's goals are clear: to deliver more of a better product, faster and at a lower cost than its competitors. Shorter time-cycles and increased production uptime are therefore at the top of the agenda. In most of the industries that ABB serves, energy, raw materials, logistics and labour are major contributors to the final product cost.

To remain competitive in a global market, companies therefore have to reduce their energy consumption, material usage and distribution costs while at the same time increasing their productivity. But that is not all.

Ever-more-stringent environmental legislation and safety stipulations have to be complied with in order to operate at all. In an increasing number of countries and industries, customers and governmental bodies expect products to be accompanied by a complete audit trail. With this increase in complexity, it is hardly surprising that manufacturers look to advanced optimisation techniques to enhance productivity and ensure that their business targets are reached.

The recent troubled state of the world economy has even helped here. Lofty

discussions about advanced software for collaborative co-operation across the entire value chain have given way to a more pragmatic search for productivity improvements. Industry and the utility companies have come to realise that there will be no more 'easy-pickings'.

As a result, more complex tasks are now being tackled across all industries and in all areas, from engineering through operation to distribution. While all of these 'aspects of productivity' contribute to better results, they do so in different ways. Aggregated, they improve the bottom-line, whatever the industry.

Benchmarking

Benchmarking within an industry points out some significant differences in the overall performance. Pharmaceutical companies are a case in point, and a good example of a sector where there are opportunities for improvement (see table). The data indicates that there is a considerable upside to adopting more advanced strategies for both scheduling and operation optimisation. It is interesting to also see that the figures for the different industrial sectors are very

similar. This is because 'best-in-class' means just that, and applies to all sectors, all of which are now approaching the same performance level.

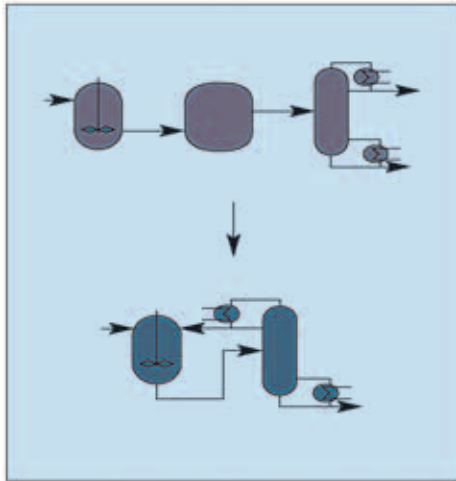
The importance of automation

The over-capacity that exists in many industries today is forcing companies to focus on utilising existing assets rather than on investing in new capacity. Here, automation can be a key factor. When capital is scarce, automation solutions often offer the best return-on-investment.

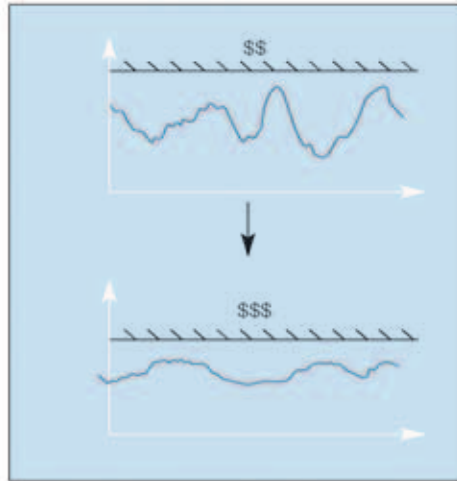
Recent decades have seen broad consolidation in all industries, motivated in most cases by companies' need for global market reach. ABB has been more than a by-stander. In fact, we can justifiably claim to have been a driver in the consolidation of the automation industry, where we are today a global leader. We actively develop new strategies made possible by advances in a whole host of areas: communications, computer capabilities, open software and pricing trends, sensor technologies and applications.

Automation suppliers need to be able to deliver products, systems and services to

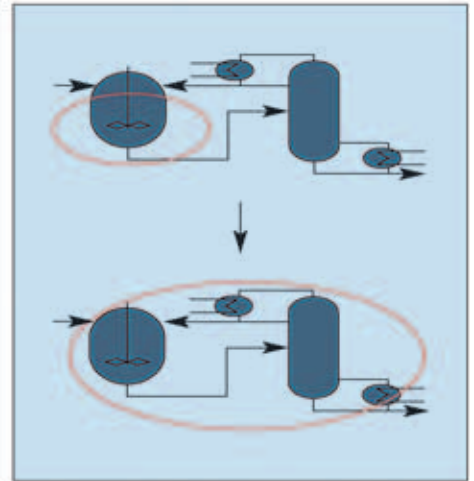
1	Aspects of productivity	1c	7) Enterprise Resource Planning 8) Computer Maintenance Management System 9) Geographical Information System
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a) Inventory reduction (eg: buffer removed)



b) Optimization of constraints



c) Optimization scope extended

consistent standards, and do it globally. This is because many customers operate worldwide and prefer to rely on just a few suppliers. This also means that expertise must be available around the clock and supported by remote connectivity tools for diagnostics and troubleshooting.

The goal of achieving enterprise-wide decision support in real time continues to feed the trend toward deeper integration of third-party systems, such as ERP⁸, CMMS⁹ and GIS¹⁰, with the automation systems. Productivity-enhancing tasks that are part of this strategy include optimal operation despite constraints, with the scope extended across departments and plants. Optimal scheduling of production orders and maintenance are becoming essential features in the asset management software that is now an integral part of the automation supply. The virtual factory, as a concept, has to be supported by algorithms that enable the optimised distribution of orders to factories around the world.

Automation suppliers must sit up and take notice of another customer requirement – improved asset productivity. The buzzword here is ‘overall equipment effectiveness (OEE)’, and new asset management tools are being developed to improve it. Rather than just increase the tonnage incrementally, the control system has to support speed, quality and flexibility.

Removing the need for intermediate buffers reduces inventory, resulting in better energy efficiency with faster cash and product cycles. The automation system must ensure consistent quality, high yield within the production constraints, and fast grade changes in a more dynamic environment. All businesses have to be able to deal today with hard constraints, like safety and health regulations, environmental legislation, as well as soft constraints such as product quality,



with different grades demanding different market prices. The control system must ensure smooth, optimum running of an operation within the limits imposed by these constraints. It has become clear that to access further potential productivity improvements, the optimization scope has to be broadened to include larger process areas. However, this makes the tasks even more complex. The trend is away from single-unit

control toward control of the complete process line, from single plants to multiple plants, and from a single optimisation objective to multiple goals.

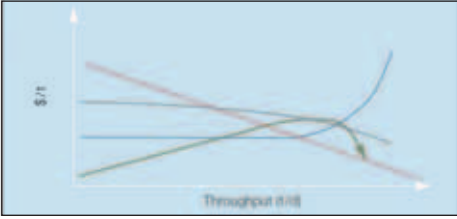
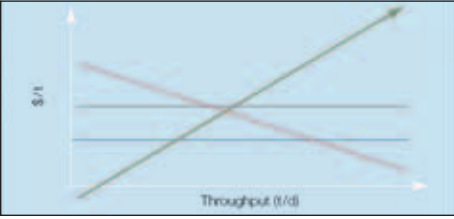
The value of real-time information

Communication is the key to optimising operations across departmental boundaries. This is true whether the information is used to support decision-making or for closed-loop control, as in either case real-time information has to be delivered to the right place at the right time. Many new technologies are available for this today, and the benefits are considerable: personnel are empowered by being given access to information across disciplines; wireless communication encourages mobility and web-based services provide access to expertise. All of this is offered in the spirit of productivity improvement.

Intelligent field devices communicating over field buses provide accurate measurement data and have self-diagnostics capability. The trend towards more complex measurements with equipment capable of self-calibration is also driving product quality and at the same time reducing raw material usage. A good example of this is the demand for direct measurement of quality variables in paper production or the analytical measurement of chemical components.

Every item of installed equipment has a considerable amount of documentation

2 The value of real-time information



Traditional static accounting uses average data and indicates that order revenue and variable costs are linear. The contribution margin increases with production volume.

In reality, revenue and cost per ton vary over time and according to supply source, customer and operating rate. Max. profit is often achieved below max. operating rate, where revenues no longer exceed costs.

attached to it – manuals, drawings, spare-parts lists, operating history, and so on. Each document has to be continuously updated, and must be accessible when needed. ABB has introduced a technology that describes each device as a software object containing the properties of the real object, like a motor, as so-called Aspects. These Aspects might be located in several different systems, such as CAD, CMMS, ERP or a control system, but the Aspect integrator ensures that all the information is both timely and consistent. An object does not necessarily have to be an actual piece of equipment, like a motor, but could be more abstract, for example an order, with information such as the original purchase specification, quantities, location in the warehouse, etc, as its Aspects.

plant or network, possibly across multiple plants or multiple networks, requires powerful computers and new algorithms. Process models are needed that combine on-line estimation with the laws of physics. Such a toolkit for optimal control will have many different interactive components. The models themselves will change over the process lifecycle, being continuously updated with the help of real-time data.

Economic optimisation

Every business, whether it manufactures products, provides services or distributes electricity over a network, must ultimately be interested in being able to control its operations from an economical standpoint. Normally, this translates into minimisation of the 'cost minus revenue' function. The more elements that are taken into account, the more realistic the control strategy will be. However, this comes at the cost of an exponential increase in complexity.

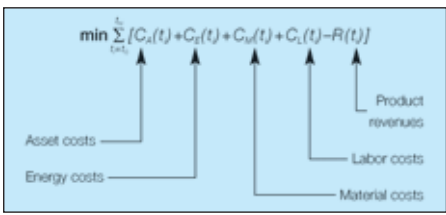
The minimisation of this so-called economic objective functional over time is subject to the hard and soft constraints described before as well as to the dynamic behavior of the different components, since several of

Data-consistency is essential for more advanced optimisation and modelling. We need to ensure measurement accuracy, consistency between production plan and maintenance plan data, use of real-time costs and prices rather than historical averages. Use of real-time data can significantly impact the computing of the optimal production level, which might sometimes deviate from full production. In fact, the variable cost might rise steeply and non-linearly as full production is approached, while the fixed-cost contribution continues to decline linearly, resulting in maximum profit being achieved below the maximum operating rate.

Tools for advanced optimisation

Optimising an operation within the business constraints outlined above, and doing it across several departments or a whole

4 The economic objective functional



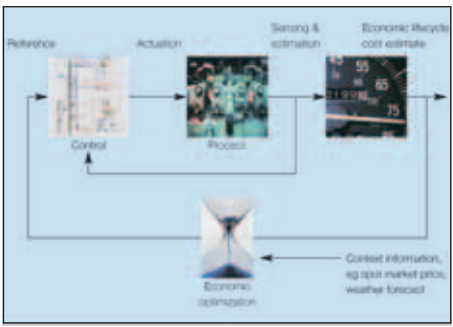
them change over time. What the industry ultimately wants is to be able to calculate these control strategies on-line, based on real-time data. A closer look at the individual components shows how:

- *Asset costs* depend on two different phases – the design and the lifecycle. The latter depends on the residual life expectancy and on maintenance and inspection costs, which might be a function of operating strategies.
- *Energy costs* have a thermal and an electrical component. In each case, companies can either purchase the energy or generate it themselves. Costs vary with market prices and fuel type. The export of excess generation can be included in the formula by inserting a negative cost factor.
- *Material costs* are dependent on market prices, the quantity and discount strategies. Inventory costs can add to the dynamics by bringing factors into play like the storage of intermediate products in buffers or final storage of the end product.
- Finally, the *labour costs* depend on several factors – manned-shifts, inspection and maintenance frequency and the plant's location, among others. In practice, this cost element has a significant impact on the outcome of any optimisation attempt.

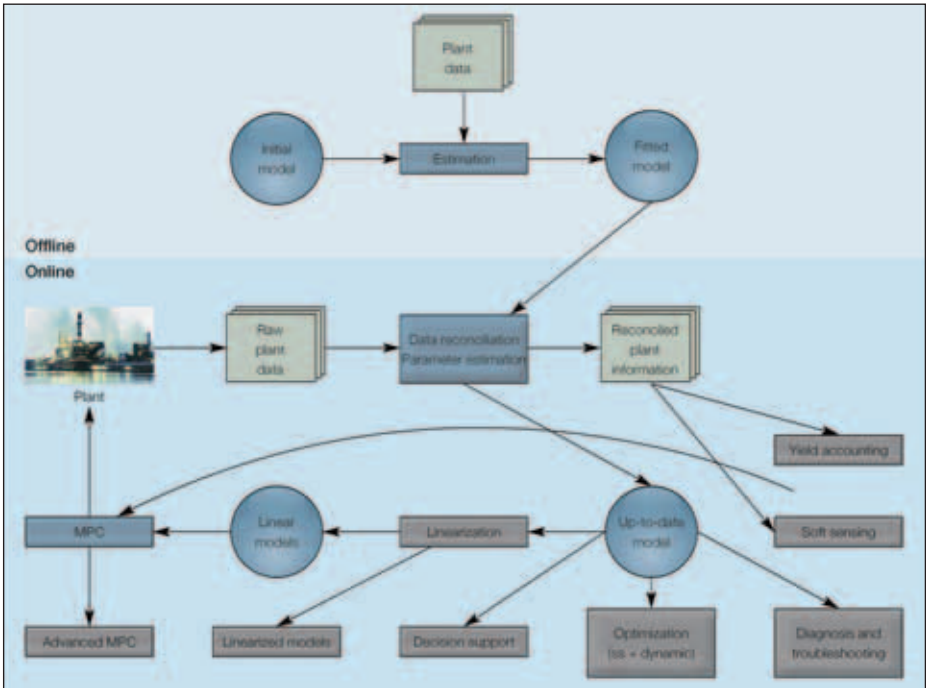
All of the above costs are balanced against the product revenues, which vary with changing market prices.

(5) shows how, by implementing an outer economic optimisation loop, operating set points are provided to the inner-control loop.

5 Asset life-cycle: Implementation of an outer economic optimisation loop enables operating setpoints to be provided to the inner control loop.



3 Control models change over the process life-cycle, being continuously updated with the help of real-time data (SS) Steady State



steps in this direction promise to have a significant impact, as further articles in this issue of ABB Review will show.

Such models are used to determine predictive behavior over long time intervals in order to optimize production order scheduling and to calculate the best possible operating level from real-time information. Time horizons of 24 to 48 hours are very common, but even longer intervals than these are desirable. A way forward here might be clever algorithms designed around structural decomposition.

Today's control systems are equipped with tool kits that contain P, PI and PID controllers – the 'workhorses' of the automation industry. While condition monitoring of rotating machines is common enough, condition monitoring of control loops is anything but common. In fact, a typical plant could well have 30 to 40 percent of its loops running on manual because of poor tuning. That such a plant would be performing well below par hardly needs saying. Fortunately, automatic tuning packages that solve this problem are available.

In the area of more advanced control, the current trend is toward model predictive controllers (MPCs), but controllers based on quadratic cost functions or linear controls with state constraints are also widely used. The MPCs being adopted today are mostly Single Input Single Output (SISO) types. Multiple Input Multiple Output (MIMO) controllers with linear constraints are also gaining in popularity. The algorithms most commonly used where non-linear constraints exist are gain-scheduling algorithms. Optimization algorithms normally focus on steady-state conditions with transient behavior (grade changes) handled in small ramps. Object-oriented modeling is becoming more popular as the relevant tools and programming languages are developed.

In the near future, real-time dynamic optimization of transient conditions, hybrid modeling of process dynamics and mixed-integer programming will all be included in the toolbox of the process engineer. Ultimately, economic optimization of process operations, including life-cycle aspects, will be the solution of choice for industrial customers.

Source: ABB Review

Frontiers of advanced control

As demand for more sophisticated mathematical modelling of industrial processes grows, we can expect to see intensive R&D efforts in several areas. At the top of the list are improved ease of use and robustness of algorithms in an on-line setting. Since plants can be seen as homogeneous entities, we can expect to have to deal with more complex problems. Going beyond a single site, we will tackle the virtual plant with multiple production lines, located around the world. Research in the application area will look at ways to decompose these larger tasks and apply distributed problem-solving techniques, such as agent approaches, without introducing sub-optimisation.

Non-linearity, transitions between steady states, dynamically changing constraints, and abnormal event handling, are all problems that industry is familiar with and would like to have on-line, real-time solutions for. Prediction and advanced scheduling must be able to cope with longer time horizons with variable time intervals.

Data consistency and data quality is another area in which further research work has to be carried out. Mass balance

techniques can compensate for measurement errors caused by sensors 'drifting' or failing. This ensures a degree of consistency, but further improvement is possible. Using predictive maintenance to improve asset management of sensors, rotating machines and actuators, is a proven means of eliminating unplanned production stops.

Ease of use has two facets. On the one hand, the models must be designed for easy interaction and be comprehensible to the operators. On the other, it must be possible to generate them from the plant topology as it is described in the P&I (Process and Instrumentation) diagrams. It is important for the data to be entered just once. Economic data should originate from ERP systems. Life-cycle dimensions should be built into the overall models.

We can say, in summary, that asset and energy aspects of productivity deserve more emphasis in modeling, control and optimisation. Recent advances in automation have simplified the industrial application of control and optimisation, but there is a constant need to improve the modeling and engineering as well as the usability of the models. To reach these desirable features we still have a way to go, but even small

Rebuilding lives!

Months have lapsed since the Tsunami struck off the coast of Sumatra, causing widespread damage and loss to life and property. In India, Tamil Nadu, parts of Andhra Pradesh, Kerala and the entire Andaman and Nicobar islands were affected. The victims of this disaster are still trying to pull their lives together. At the time, ABB responded with immediate aid in the form of clothes, stoves, blankets etc. With the relief phase over, a long-term rehabilitation programme is in place.

After dialogues with affected people, NGOs and local administration and a need-gap analysis to understand current rehab efforts, ABB has decided to work with marginal groups in 17 villages of Nagapatnam and Karaikal districts to restore their livelihood.

The fisherwomen are an integral part of the fishing community, responsible for marketing, processing and distribution of fish. Most of their equipment like ice-boxes, baskets etc, were lost in the tsunami and many have debt burdens with no means of repayment. Along with Sneha, a local NGO, ABB is working with 50 self-help groups of 15 women each, to reinstate their lost livelihood. Means of augmenting their income have been created such as group ownership and running of autos, grinding machines, creation of fish-drying platforms for processing excess catch,

and helping them form a federation to negotiate better prices.

A boom in construction followed the tsunami, creating potential in construction related trades like electricians, plumbers etc. The government and NGOs wants these jobs to remain with the affected groups hence strengthening the local economy. Skill training in some of these identified trades to enhance alternative/non-fishing based livelihoods is the second area where ABB is involved. The Construction Workers Building Construction (CWBC) is conducting a two-month skill-training programme and they would absorb the trainees in construction contracts negotiated with the government. Apart from training, the successful trainees would also be provided with tool kits.

Persons with disability form another section of the community that needs focused assistance. Marginally disabled persons who were earlier running small businesses like petty shops, etc. lost all their inventory and equipment. Working with the District Disability Network, ABB is focusing on identifying such persons with moderate disability, and reinstating them in entrepreneurial activities, as well as construction related trades.

ABB has also partnered with Action Aid - an international NGO with extensive experience in disaster relief for the Tsunami rehabilitation effort.

ABB employees had contributed a day's salary which was matched by the company and this fund is now being used for the rehabilitation programme.



Green technologies



The Troll A gas platform in the North Sea is the first off-shore platform in the world to be powered by a direct current (DC) electricity link originating on land - an achievement with considerable cost and environmental benefits made possible by ABB technologies. The platform, located some 70 kilometers off the coast of Norway, is run by Norwegian oil giant Statoil and started commercial operation in 1996. On October 1st, 2005, two 40 MW compressors commenced operation at Troll A to maintain the gas delivery pressure, compensating for falling reservoir pressure. ABB deployed two key technologies - HVDC Light (High Voltage Direct Current) and the VHV Motor (Very High Voltage) - as well as other solutions to help power the two 40-MW compressor units on the Troll A platform without any local power generation.

The benefits of transmitting power from the shore to the platform includes zero-pollution (all electricity used on Troll A is generated by hydro-power on the mainland), increased transmission efficiency, longer life-cycles for equipment, fewer maintenance stops and a perfect health and safety record on the platform. It all adds up to major savings and lower costs.

Transmission of power from shore to platform eliminates carbon-dioxide and nitrogen oxide emissions from the platform and its gas treatment plant at Kollsnes.

Avoiding tax on CO₂-emissions also cuts costs. High among the list of other benefits is health and safety. Use of the technologies and avoidance of on-board power generation - has meant no injuries and no loss of time through incidents, a key element in Statoil's business strategy.

President's club honours top performing channel partners

At a glittering event held in Bangalore recently, ABB India honoured its top performing channel partners from across the country. Mr. Uppal, VC and MD addressing the audience, said, "I am heartened and encouraged to note not just your achievements but also the spirit of ambition and determination for the future." "We truly value you as a 'partner' in our progress and look forward to your continued dedication, loyalty and support

as we continue to reach for even greater heights " he continued.

"Our channel partners are truly our 'partners' and we are indeed encouraged by their enthusiasm and support in helping us grow our product business aggressively. We on our part will continue to support them in every way in order to maximize our market presence." said Mr. Biplab Majumdar, Head - AT Division, speaking at the occasion.



Winners

- 🏆 **RK Manchanda**
Classic Engineering, Delhi
- 🏆 **D Kanthilal**
Cauvery Electricals, Bangalore
- 🏆 **Ashok Gupta**
Gupta Engineers, Faridabad
- 🏆 **K Sridhar**
Trend Electric Co.Pvt.Ltd. Chennai
- 🏆 **Avinash Wighmal**
Shrirang Sales Corp. Surat
- 🏆 **Devang Munim**
Pooja Industrial Agencies - Surat
- 🏆 **Vinod Agarwalla**
Integrated Data Systems, Kolkata
- 🏆 **Munish Sharma**
Venture Control Systems, NOIDA
- 🏆 **U C Ratadia**
Suman Electric Udyogs, Bangalore
- 🏆 **Krishna & Javed Baig**
JK Automation, Kolkata

A road show with a difference!

ABB India recently launched a mobile display van at New Delhi to reach out to industrial customers and channel partners in the Northern region. This will help to increase awareness and give a first-hand experience of the comprehensive portfolio and vast product range. The van is equipped with product display stands, with a hydraulic lift, facilitating easy entry and exit of the stands. Pull-up banners and product catalogues give the customer an overall feel of the Company and its offering. A sales engineer will accompany the van to various cities, towns and industrial areas, where along with the Channel Partners, they will organise meetings, road shows and demonstrations. This is the first 'pilot'; based on the experience, more such display vehicles will be rolled out in other regions.



Launching of the first standard products mobile display van

All for one, and one for all

ABB's universal motor controller (UMC22-FBP) utilises the new FieldBusPlug, so OEMs don't need to make costly product adaptations to meet multiple fieldbus protocols. It helps improve reliability of electric motors in comparison to conventional methods, like thermal overload relays. That's important because the productivity of a paper mill, for example, depends heavily on the reliability of its electric motors - and downtime would be tremendously costly. UMC22-FBP can save OEMs money at every stage in the design and manufacture of any kind of motor-driven machinery. The FieldBus Plug adds simplicity and flexibility - from the drawing board to installation on site because the entire motor control centre comes as a complete unit, the manual labour required to install the system on site is also reduced significantly - cutting installation costs while increasing operational uptime.



Pioneering videographic recorders



ABB's SM series of videographic data recorders packs in more innovations and features than any other data recorder, which is why the SM3000 - won the prestigious "Control Engineering Editor's Choice Award" for "service to industry, technological advancement, and market impact". Since its launch, the SM series has become an increasingly popular replacement for paper chart recorders and older generation recorders in a broad range of processes where emissions, quality and product integrity have to be monitored and recorded continually or at frequent intervals.

It features Microsoft Windows compatibility for ease in use, solid state compact flash memory cards for high data storage capacity, large choice of display like strip and circular charts, digital indicator, process and bar graph displays, remote process monitoring, real-time information, advanced data access and e-mail facilities via Ethernet communications systems. SM videographic recorders are used all over the world in industries like food and beverage, aero and automotive, water and wastewater and electric power.

Award-winning Motorformer

ABB's unique invention – the Motorformer is a very high voltage motor and generator that is suitable in any application where conventional synchronous machines are used, both onshore and offshore. The motor operates at very high voltages of up to 70 kV (compared to 15 kV typically for a conventional motor) that is connected directly to the grid, with no need for a transformer or related secondary-side switchgear.



The stator windings operating at various voltage levels consist of standard XLPE insulated power cables, circular in shape as opposed to the conventional rectangular one – allowing for a smooth field distribution around the conductor. By eliminating the need for a transformer and switchgear, the Motorformer also omits the additional civil work associated with system installation and commissioning. In addition, the total footprint is much smaller, reducing the amount of space required. Fewer system parts means less maintenance, as well as improved reliability and availability. Apart from the stator windings, the Motorformer has been designed with conventional ABB components.

Monitoring via SMS



ABB's new GSM-enabled FieldIT AquaMaster water flow meter allows water utilities to perform flow measurement, configuration and diagnostics remotely using standard SMS messaging.

Water flow meters control and monitor water flow and pressure in pipes that carry potable water into factories & households. ABB's modern electronic meter FieldIT AquaMaster with an integrated data-logger, offers superior data accuracy as compared to the traditional mechanical meters. Like any metering equipment, water flow meters require regular reading, testing and occasional configuration changes. Given the vast number of meters and distance between them, checking and servicing these meters manually on-site is an extremely costly scheme. Using ABB's new generation of GSM-enabled FieldIT AquaMaster, most of these operations can be carried out remotely using only a standard GSM mobile telephone or a GSM-linked PC.

ABB young scientists rated top innovators in MIT review

Katrine Hilmen, a scientist at ABB's corporate research center in Norway has been named one of the world's top 35 young innovators by the Massachusetts Institute of Technology's (MIT) Technology Review. In 2004, ABB research scientist Charlotte Skorup was named to the Young Innovators list for research involving software to simplify and improve the way human beings interact with machines.



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Company	Revenue (Rs. Crores)	Profit (Rs. Crores)	EPS (Rs.)	Dividend (Rs.)	Market Cap (Rs. Crores)				
HPCL	6222.00	228.81	16	5.61	23.88				
ABB	3445.80	49	256.16	77	56	78.32	27	24.26	
India Upcom	100.00	220	303.73	149	117	33.45	142	683.70	
Kohler Layland	3433.66	37	820.56	43	39	24.70	218	61.03	
ITC								613	160

The last word

Thank you for your feedback, encouragement and useful suggestions which help us continue to strengthen CONTACT. It is our endeavor to ensure that CONTACT not only brings you the latest from the world of ABB but also helps build a common knowledge and technology platform in the power and automation space. We shall continue to bring you these 'theme based' issues, which you have appreciated. Do feel free to suggest any specific topics you would like us to cover.

Harmeet S Bawa, Head, GF-Corporate Communications, ABB India

In perfect tune with metal



Hitting the right note at the right time is the secret behind all harmony. Fine-tuning the processes in the iron, steel or non-ferrous metal industries can help your business to become more productive, efficient and competitive. By providing the right information at the right time in the right place, ABB's wide range of solutions make sure that all the instruments in your production facility will always know what key you're playing.

Whether it's hot or cold rolling mills, casters or melt shops, ABB can help you with the design, planning, engineering, supply and commissioning of your complete electrical and automation systems. ABB provides process automation, advanced drive technology, smart measuring instruments, technological control, modelling and a full range of service - all from one single source. So lets make music together!