



# THE TRADE MAGAZINE FOR INDUSTRIAL AUTOMATION



### A&D - INTERVIEW

B R Mehta  
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# Catching up with technology speed



The state-of-the-art refinery of Reliance Industries Ltd at Jamnagar, is a prime example of successful implementation of the latest automation and control technologies, including the Foundation fieldbus technology. **B R Mehta**, Senior Vice President, Reliance Industries Ltd, is one of the key persons who has worked from concept to commissioning in this project. In this exclusive interview with Shekhar Jitkar, he gives an insight into this remarkable project, and also shares his views on a number of interesting aspects. Excerpts...

■ **What sort of pro-active approach can manufacturers follow today to deal with the ups and downs in the economic situation?**

Economy is going to be more volatile in the coming times as technology deepens and widens in the functioning of the market. A boundary-less market, coupled with fast changing technology will lead to shorter economic cycles. Companies should be ready to face economic cycles of typical 3 to 5 years duration, by leveraging their inner strengths of people, processes and systems. Investments in flexible manufacturing practices

should be the leading way for all manufacturers and enterprises.

Enterprises should consistently internalise certain practices to reach high performing levels. They should seek to develop a broader and a deeper view of their market opportunities. At the same time, they have to be more innovative in strategy and structure than their competitors, more collaborative with partners and more questioning of themselves and their potential. They need to take a much more holistic and long-term approach to their intellectual capital and communicating more frequently

and transparently to both their internal and external stakeholders. Broadening the understanding of risk in their market is also necessary along with tightening their execution and key support processes to mitigate that risk. Enterprises should pursue and attain greater speed in making and executing decisions to take advantage of the fast-changing market conditions.

■ **What is your experience at Reliance Industries in this context?**

It is evident that Reliance Industries is where it is today

because of innovation in thinking and execution. Given its ambition for India and its own organisation, Reliance leadership has now taken on many initiatives in the innovation domain. The leadership recognises that its biggest competitive advantage and differentiator in the future would be innovation. Innovation has to become the language, the behaviour definer, the culture and the soul of Reliance, even more explicitly than ever before. Reliance management has seriously taken initiative in spearheading innovation-led growth in all dimensions of its businesses in these times of



economic volatility.

Smaller projects have been identified, which could offer synergy to present manufacturing domains. Employees have been rewarded to come up with innovative ideas and challenging conventional way of thinking. Also, cost reduction is the primary focus for encouraging smaller projects with higher sensitivity.

When oil prices were above \$ 100 per barrel and demand was outstripping supply, the top priority for most companies including Reliance was maintaining and increasing production, with cost control taking a secondary role. And now, the new market reality is forcing many oil and gas companies to reassess their operating practices, investments and capital allocation. The primary focus for organisations is now on cost reduction, striving for greater unit efficiency, and for many, maintaining capital expenditure on longer-term projects.

■ **What do you think is the best strategy for manufacturers today towards automation? Should they be cutting automation expenditure or invest in upgrading for greater productivity and efficiency?**

As per the survey by economic intelligence unit (EIU) in November 2009, there are sure and steady signs of economy recovery. The topline growth in revenues is expected to rise from the middle of the current year extending well beyond 2012, with better regulations envisaged in the financial markets. Manufacturing companies are looking forward to introduce more efficiency in their systems and processes that could earn them growth in the bottomline and subsequently meeting the topline growth that is expected in the near future. This is good

news for automation companies to offer scalable solutions to their client, fulfilling their exact needs. Manufacturing companies would like to adopt scalable and flexible technologies in automation that would meet their immediate demands as well as future growth in demand.

■ **Will you be able to give a brief overview of the state-of-the-art control system installed at Jamnagar? How do you take care of upgradation from the technology perspective?**

The aim of Reliance Automation technology was to create next generation control systems using rich intelligent property of refining process and latest



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B.R. Mehta

in technology to achieve operational excellence which will have no parallel in the world.

Mission of the automation was to provide operational excellence in monitoring, controlling and managing process & business; optimum level of integration between process control, operation support & business support systems; showcase corporate image of Reliance Industries providing next generation control systems.

Following is the list of few such technologies deployed in Jamnagar Export Refinery Project (JERP):

- DCS with Foundation fieldbus for major control

and monitoring. It involves 15,000 field instruments, 1200 temperature multiplexers and about 3600 FF segments

- Emergency shutdown system with latest safety standard (SIL) introduced for all the new technology plants
- Alarm management following EEMUA 191 guideline and robust asset management to provide predictive maintenance
- State-of-art centralised control room with visitor gallery catering to all process and utilities units, which has 110 operator workstations and 40

engineering stations. The gigantic 8 video wall installed for collaborative management handling start-up scenario, shutdown scenario, steady state scenario and abnormal situation management (ASM) which itself is a new concept in control. Each video wall comprises 8 by 4 modules, each of size 8 metre wide and 4 metre high

- Redundant single mode fibres connecting 40 process interface building (PIB) run about 700 kms
- F&G uses state-of-art detection devices like triple IR flame detectors, multi-

sensor smoke detectors and connect to the central control room

- CCTV network streaming live data to central control room which can pan, tilt and zoom on to the gigantic video on demand
- Vibration monitor uses the latest system to optimise the operation of the plant
- State-of-the-art online analyser and laboratory to ensure the fine control of the quality of the products and safety of plant and personnel. It also has 25 analysers house & 560 analysers spread around the entire JERP site. All are centrally connected using fibre to the central control room

All the systems procured are upward and downward compatible. We have AMC contract with most of the essential vendors. We have web link to DCS and F&G vendor centre of excellence offices. Moreover, key essential vendor support services personnel are staffed at Reliance Jamnagar.

Each vendor provides continuous information of upgrade and alerts, which are evaluated and trial tested on training and test unit by our maintenance and operation team before implementing. Key logs are maintained in order to control and complete such upgrades. Training of personnel is the key to successful implementation of the latest state-of-art technology in JERP.

■ **How is your experience with Fieldbus-based controls, foundation fieldbus in particular?**

Fieldbus was selected after rigorous evaluation by our experts from design, engineering, projects,



operation & maintenance, senior executive team. Various previous implementations were visited and lessons learned collected.

To handle such a huge project with multi-engineering contractors and multiple locations we kept a core team and controlled the key documents from central location. We made sure that vendors selected had proven record and special interest of successful implementation of the technology. They gave us advanced information on any quality and faulty devices that required the upgradation. Our implementation plan had interoperate testing of FF devices with DCS. Maintenance records of each firmware tested and those successfully tested firmware and DD were only implemented. Each consignment of devices shipped-in was checked for the DD and firmware revision as tested. Due to this we were able to check and

correct the FF implementation.

Our young team of operation and maintenance engineers analysed the system logs and watched for any unusual trends in devices (as with digital technology, we embrace more information into the system). We are on the verge of streamlining the asset management package to give more predictive and precise help to our maintenance team.

The fast track project calls for a lot of data to be collected (valve signature, baseline limits of segments voltage, noise levels, etc). Such data now need to be compared and inferred to present conditions and alert any major breakdown. This is a change in handling data in Foundation fieldbus technology. More of such benefits are yet to be accomplished. Our experience is that if proper training is given at all levels, the implementation of FF technology is very successful.

### ■ How do you visualise the future of instrumentation, control and automation, with special reference to the Indian industry?

The world is on the threshold of emerging technologies that can offer not only solutions to human problems, but radically define the way we live life by offering sustainable solutions time tested by stringent environmental, health, safety and energy efficiency norms.

Following are the areas of development for automation solution providers: wireless technology in process plant; RFID for tracking goods, items in delivery mechanism and supply chain management; biotechnology and life sciences; nano technology; embedded intelligence & diagnostics; security of systems; alternate energy sources (like solar, fuel cell technology).

Success will come to the companies that understand how to combine and coordinate new technology, new thinking and the deployment of effective solutions for customers in global markets. Focus has to be on constant innovations and prioritisations in order to simplify complex situations and search for practical, achievable and sustainable solutions.

This is an opportunity for Indian vendors to improve their market share. Many foreign companies who were not outsourcing certain products, processes & practices will increasingly be forced to do so with the growth in the Indian economy. This also is an opportunity to diversify and de-risk across sectors geographically for most MNCs. ■

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