Empowering Times

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November 2010

Dear Reader,

'Innovation is not the product of logical thought, although the result is tied to logical structure.'

- Albert Einstein

It is really such a good time to be born in! If our parents and grandparents saw the revolution of television, telephone and computers, our generation has witnessed the internet and mobile revolution. Innovation is crucial for an organisation's survival. **Jay** discusses this and more in our column Thinking Aloud.

Podium features an exclusive interview with **Dr. Murali Sastry**, Chief Scientific Officer at Tata Chemicals. Dr. Sastry and his team have been involved in developing the most affordable water purifier - *Tata Swach* which has won many accolades including the prestigious Wall Street Journal's Asian Innovation Award - 2010. He shares with us the journey of developing Tata Swach and how he fosters a culture of innovation at the Tata Chemicals Innovation Centre.

In Between the Lines, we recommend **The Other Side of Innovation** by **Vijay Govindarajan** and **Chris Trimble**. The book offers practical wisdom to overcome the execution challenge of any new idea.

Another aspect of innovation is applying an existing technology, **Vikram Nandwani** was quick to capture this in Figures of Speech.

Thank you for your continued support, we look forward to hearing your comments and feedback to make Empowering Times even better.To see our earlier issues, you can visit our Media and Archives section or simply click here.

Geetanjali Sharma
Editor

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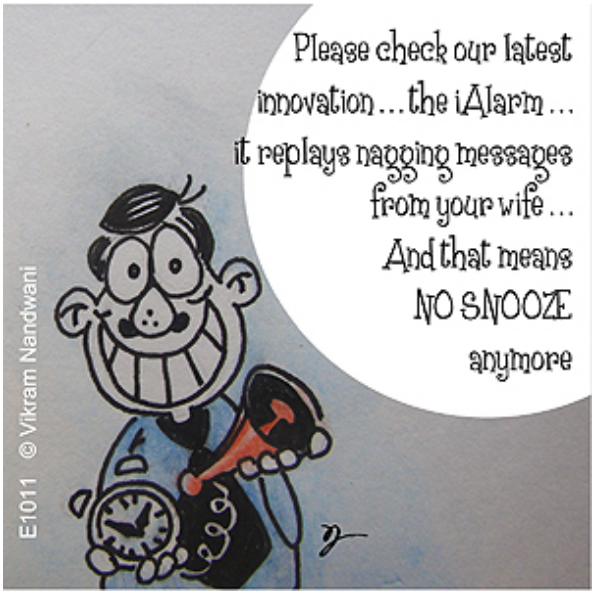
FIGURES OF SPEECH



THINKING ALOUD

Innovating for Tomorrow's Customers - *Jay*

'...many new ideas come from the fringes, where ingenuity is the answer to a pressing need in the absence of free availability of easy solutions'.

January 10, 2008, will go down in history as a red letter day in Indian business. That was the day that the Nano was displayed for the first time after months of speculation. In the blaze of cameras and before the eyes of the global media at the Delhi Auto Expo, Indian innovation found a new icon. Truly, the bar has now been raised for Indian industry. One may well argue that with one launch, Indian industry has been catapulted into the next orbit as the display of innovative frugal engineering has now fired many dreams all around.

And yet, come to think of it, wasn't it Peter Drucker who said years ago that 'Because the purpose of any business is to create a customer, the business has two - and only two - basic functions: innovation and marketing. Marketing and Innovation produce results, all the rest are costs.'

In fact, too often managers forget that we all have two jobs: servicing the present and creating tomorrow. As part of the latter, it is our ability to create changes that actually determines an organization's sustained success. If we are to ensure that the future is not a mere extension of the past, then it is even more imperative that we fuel innovation in the organisation.

The quest to be innovative has made organisations do many things. While a large number of firms envy those with the ability to generate new products or ventures for the firm, the 'innovation gene' is not the exclusive preserve of a select few. It has often been assumed that you need vast resources to make breakthroughs in business. We forget that many new ideas come from the fringes, where ingenuity is the answer to a pressing need in the absence of free availability of easy solutions. Whether it is the classic 'jugaad' inventions dotting the rural landscape of India or the low-cost, emerging markets technology developed at GE's Jack Welch Technology Centre at Bangalore, Indian enterprise has been gaining prominence, giving new meaning to a large number of potential innovators, waiting to make their mark.

Not all innovations have to be disruptive. The celebrated author and consultant, Tom Peters has never hesitated to suggest that innovation is everyone's business. While most would dismiss this as a typical Peter's exaggeration, the essence of his point was that in an organisation which creates a culture of excellence and supports risk taking, you are very likely to have fertile minds who are not prisoners to the the 'not-invented-here' syndrome that makes arrogant firms dismiss any new idea. Stressing that fostering a supportive culture that values experimentation is vital for a company to stay ahead of the game, Peters has often suggested only in half-jest that a Chief Destruction Officer is required in every firm to shake the establishment of the complacency that is ever so common as it gets high on the cocktail of success. Shades of Joseph Schumpeter here as creative destruction makes the ground for the next orbit of business.

A final thought, is there a case against excessive innovation in a firm? Not at all. Indeed, you would be lucky if you have a situation where there is a wellspring of offerings from your labs to your factory and the market. What follows thereafter is the business acumen that a leadership team requires to sieve ideas and test their market value to determine whether deeper investments are merited. But then, that's a different tale!

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PODIUM

INTERVIEW: Dr. Murali Sastry on Innovation

'...new application of something already existing is definitely an innovation'.

Dr. Murali Sastry, is a Ph.D. in Physics from IIT Chennai and was a Postdoctoral Fellow at the International Centre for Theoretical Physics, Trieste, Italy. He was also a visiting Faculty at CNRS, Orsay (France, 2001-2003), University of Maryland at College Park (USA, 1998-99) and Federation Fellow at RMIT Melbourne (Australia).

He is among the world's top 10 nano-biotechnologists with close to 25 years of research experience in the field of materials chemistry with a focus on nanotechnology. An interdisciplinary scientist, he moved to Tata Chemicals as Chief Scientist at the Innovation Centre in 2005 after creating a Centre for Nanotechnology at National Chemical Laboratories (NCL), Pune.

He has authored over 350 international publications and is recognized as an inventor in 15 Indian and US patents. Dr. Sastry has a number of national and international awards to his credit including India's most prestigious award in science, the **Shanti Swarup Bhatnagar Prize in Chemistry (2003)**. He serves on the International Advisory Board of 7 leading chemistry journals and has served on Advisory Boards for the Department of Biotechnology, Department of Science and Technology, Presidential Nanotechnology Committee and the Council of Scientific and Industrial Research (CSIR), Government of India. He is currently India's representative to the United Nations Industrial Development Organization (UNIDO) Committee on 'Nanotechnology, Sustainability and Developing Economies in the 21st Century'.

We asked Dr. Sastry a few questions on Innovation and Tata Swach and here is what he has to say...

ET: Tata Swach is the most affordable water purifier today, can you share with us what led to this break through innovation?

MS: Actually there are a number of factors; it started with Mr. Ratan Tata's statement when he was asked about what next after Tata Nano? His response to that question was to provide the world's most affordable safe drinking water purifier.

Mr. R. Gopalkrishnan, Vice Chairman of Tata Chemicals visited the Tata Research Development and Design Center, a subsidiary of TCS where he saw a water purifier called Sujal which used Rice Husk Ash (RHA) as a filtering medium. Rice husk is used as fuel in rural India; Prof. PC Kapoor from IIT Kanpur, discovered that after the husk is burned, the ash had a good amount of silica and activated carbon. The combination made the ash a good porous material for water filtration. It could remove suspended solids and ionic impurities. The water filtered through Sujal was quite good. Sujal was already used in the earthquake hit areas in Gujarat and in the tsunami affected areas in the southern India. Sujal, however had a limitation; it could not remove bacteria from the water. International standards required a 6-log reduction of bacteria, which means technically zero bacteria. Mr. Gopalkrishnan had the vision for Swach and asked if our Innovation Centre could make this happen. He could see the promise in Sujal.

Now, silver has long been known for its bactericidal properties, both gram positive and gram-negative bacteria. The challenge we faced was to marry the bactericidal properties of silver with RHA. We studied the chemistry of the RHA and it took a couple of years of R&D to get to this breakthough innovation. Today we have filed 14 patents for this product.

There are other innovations in this product as well. We have developed a fuse that automatically shuts off the water flow after 3,000

litres. When the product was ready, we had to scale up the manufacturing and it involved a lot of precision engineering. There was no off-the-shelf machine or process available to produce this and engineers from Titan came in to provide their expertise. Tata Swach was a result of a collaborative effort between three Tata Group companies - TCS, Tata Chemicals and Titan.

ET: What is the difference between creativity, invention and innovation?

MS: It is now established that commercial exploitation of an invention is innovation and creativity is the basic thing, which leads to any invention or innovation. Let us look at the example of Tata Swach - there was a basic need of providing safe drinking water at an affordable cost. Additionally the water purifier had to work without electricity & running water. Most of the technologies currently available for purifying water, whether Reverse Osmosis (RO) or Ultra Violet (UV) rays, need electricity and running water. We had to invent something which would work in the given constraints. Using RHA and nano-silver is an invention here. Further research and developmet led us to a product which could be launched in the market. Thus, our invention became an innovation and the ability to do this came from thinking creatively.

ET: How do you foster a culture of innovation in an organization?

MS: It is a very difficult question; there is really no recipe to creating a culture. I can share what we have at the Tata Chemicals Innovation Center.

First, we have a lot of diversity. We have scientists from the fields of Physics, Chemistry, Biotechnology, Polymer Science, Catalysis, Molecular Biology, etc. From an academic scenario, they would be separate fields with little interaction, whereas we have a culture here where we encourage scientists to work in any field they want to. We encourage cross functional teams where scientists from diverse backgrounds can come together and work. Diversity helps in looking at the same problem with different perspectives.

One technology can bring a breakthrough in the other. I would like to give an example of Nintendo Wii, a breakthrough innovation in 'gaming', which has changed the entire gaming experience. Nintendo Wii used the technology of an accelerometer to detect minute human movements and create a game in which the human became an active part of the gaming experience. An accelerometer is actually used in automobiles to trigger the release of air bags by detecting minute changes in direction and velocity. This was possible only when you look at the situation with different perspectives. We promote scientists with diverse expertise to interface with each other which helps in looking at the problem with different perspectives.

Second, we have a loose or almost non-existent hierarchy, where people feel free to criticize, give ideas and suggestions and brainstorm. We have an open culture where everyone is equal. Third, having a young team also helps, since they do not have a past baggage and are willing to explore more.

I also believe that we have to give a lot of freedom to operate. Processes are good but only beyond the creativity phase. It is also important to identify where does an individual fit-in. There are some scientists who like to think of a solution to a problem and immediately move on to the next idea, whereas there are some who like to work through it and convert the idea into a product. This identification is crucial because the thinking styles are often diametrically opposite.

To summarize, I would say, give people their right space, have a loose hierarchy, have openness in the company and have young people in the team.

ET: Creativity and innovation is often associated with young companies with a bubbly culture (like Google, Apple, Advertising Agencies, etc.). Can innovation happen through a systematic process in a manufacturing company like yours?

MS: Yes, it is possible. Innovation is of two types: incremental and breakthrough or radical. Incremental innovation is on something which already exists, breakthrough is something completely new. In a manufacturing company it is more incremental. It is not that radical innovation does not happen, but incremental innovations happen more. It is also about how you view it, for example the Tata Nano, could be a breakthrough innovation in making affordable cars, but making a car in itself was not a breakthrough innovation!

ET: Can the popular Indian practice of 'Jugaad' be termed as innovation? Please comment.

MS: New application of something already existing is definitely an innovation. In India, all along we have always been applying a technology that is locally available for different purposes. Finding a new application for the same technology is definitely an innovation. But, jugaad sometimes also has a negative connotation; I wouldn't call that as innovation!

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BETWEEN THE LINES

The Other Side of Innovation - Solving the Execution Challenge

- Vijay Govindrajan & Chris Trimble

The book starts with the analogy of climbers scaling a summit and all their energies are focused towards reaching the top. But, what is never in the mind is the energy required to come back safely.

This is a good comparison of how organizations are heavily focussed on innovation but struggle to execute their innovations. A project is actually complete only when the product reaches the market. This process of executing the idea is 'The Other Side of Innovation' the authors are talking about.

The critical point the author discusses is that an existing organization (performance engine) is so focused on efficiency that experimenting with a new idea becomes difficult. A new idea needs a dedicated team and an organized execution which is different from the way the rest of the organization works. There is a natural conflict between the performance engine and the innovation team. While the performance engine is running the present, the innovation team is building for the future. The two have to develop mutual respect for each other and leadership in the organization plays a crucial role in making this happen.

This is a two part book, where the first one focuses on building the right team to innovate and second talks about planning and evaluating an innovation initiative. With diverse examples from GE, Deere, BMW, etc the authors present the practical side of the execution challenge and how to beat it.

If you are on an innovation journey, please use this book to know the possible execution challenges, how to beat them and sucessfuly reach the other side.

About the Authors: **Vijay Govindarajan**, is the Earl C. Daum 1924 Professor of International Business at the Tuck School of Business and founding director of Tuck's Center for Global Leadership.He has been an advisor to global companies like AT&T, Boeing, British Telecom, IBM, J.P. Morgan Chase, etc.

Chris Trimble is also on the faculty at the Tuck School of Business at Dartmouth. He has extensively studied the challenge of executing an innovation initiative.

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