

THE TECHNOLOGICAL INNOVATION AND SHIFT IN BUSINESS PRACTICES

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ABSTRACT

The time has arrived to go for the innovativeness in all sectors to face competition in the Global Market. It should be cost effective, quality sensitive and eco friend with a clear Mission and Vision. Most of the Organizations even today thinks R & D or Innovations are simply wastage of time, money and mis - utilization of labour force, but in true sense, it is a long-term Investment. Any small change, any small suggestion and even from any grass root level are to be welcome. Today whatever growth we see in the Global Market or new innovations, it is due to the constructive thoughts and encouragements by the Concerned Managements. During slack Marketing scenario, new innovations are always welcome. To sustain in the Market, the manufacturers must make strategic plan to discourage in producing non-profit making and conventional items. The Machineries are to be modernized with cost effective productions of the items. In Textile Industry there is huge lacuna in R&D activities and most of them are dependent on hired Technology. The role of the Textile Research Institutes is very limited. The Talent Search Management is very low in this sector. The Corporate /Organized sectors in these Industries are doing lots of innovative works to remain at top position in the Market, but the works are not published and kept secret within themselves. Hence, the small groups of the companies is not getting any proper clues, nor invests in R&D and later suffers or even face closers. Ultimately it is a nonstop practice and it should be carried out by Joint collaborations, joint ventures, Technology Transfer, Exchange of the scientists, by encouraging the employees within the Campus. The success remains in the hands of the Organizations with proper Mission, Vision and strategic planning. This paper has also given the unique case studies that from the mere wastages how the new products can be developed with innovative ideas. Pros & cons in doing R&D in the Private sectors.

KEYWORDS: Creativity, Cost Control, Innovations, R & D, Skill Enhancements, Talent Management.

Introduction

Top growth driver today is innovation and to be competitive in the global marketplace, organizations need to be driving more innovation in their products and services. They need to innovate rapidly and they need to do it cost-effectively. This is the need of today. Even during the recession, CEOs were mainly focused on growth, and they expected technology to be the main enabler of innovation. In fact, most CEOs were looking to use technology to gain both efficiencies and differentiation simultaneously. A survey conducted by *PwC in 2011 found that 80 percent of CEOs believed innovation drives efficiencies and leads to competitive advantage. For most of them, technology is one way of capturing both. Close to 70 percent of CEOs surveyed were investing in IT to reduce costs and to become more efficient, while 54 percent were also funneling funds toward growth initiatives that leverage emerging technologies such as mobile devices and social media. [*Price water house Coopers (doing

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business as PwC) is a multinational professional services network headquartered in London, United Kingdom. It is the second largest professional services firm in the world].

Even the best technology can't deliver success without focus on business strategy and goals. It is important to have a clear vision of where the company is going, as it will define and set the context for the role innovation will play in enabling profitable growth, help determine the type of innovation you want to drive and the way you need to organize to effect change. Innovation can manifest itself in multiple ways, whether in a technology change that determines the products and services you deliver, or a business model change that defines the value you deliver. Companies must determine the types of innovation they need-incremental, breakthrough, or radical:

- Incremental innovations make small changes to a company's existing technologies and business models (1st category).
- Breakthrough innovations make significant changes to either the technology or business model, producing significant growth (2nd category).
- Radical innovations, which take place more rarely, combine technology and business model innovation to create major new industries with exponential growth (3rd category).

The Role of R& D in Industrial Growth

R&D (Research & Development) plays a very important role in the success of a business. R&D contributes to sustainability of business. Many companies do not understand the importance of R&D until it is too late.

It is the R&D function that provides a platform for creativity and innovation to flourish in an organization. Innovative breakthroughs have happened only because of painstaking efforts of the R&D function. Perseverant efforts are needed when one is in pursuit of research. Every failure in a R&D effort increases the pressure to perform.

R&D helps a business to have a competitive edge over its competitors. It is the R&D function that develops plans much ahead other functions. The R&D function needs to have a clear foresight about future problems that need solutions. R&D (in its development role) can act as a catalyst for speeding up the growth of organization by way of introducing breakthrough products in the market.

R&D is very relevant in today's competitive scenario when customers are hankering after new products and new technologies. The firm that can successfully leverage its R&D efforts by translating the efforts in building new products will find itself ahead of its competitors. Expenses on R&D can be considered not as expenditure but as an investment.

The Role of Ind. on R&D efforts can take a while to materialize. But once success is achieved, the financial returns can be quite high. Pharmaceutical companies, chemical companies, automotive companies, lubricant companies invest massive amounts of capital expenditure and revenue expenditure for this reason. These companies strive to be ahead of others in their learning curve.

Some companies are technology leaders, while others are followers. Some industries prove to be laggards (they are the ones to wake up to the market realities a way bit late).

Let us take the case of mobile phones. Today there are different types of models that are being launched in market are the result of intensive R&D efforts. Apple, Sony, 3M are the companies that are known for their breakthrough technologies - some of these technologies are albeit disruptive because they make the existing technologies redundant.

Many firms have converted problems into opportunities only because of their R&D efforts. These companies eventually became technology leaders as they created a churn in the market

All the modern inventions—laptops, palmtops, music players, iPods, mp3players, automatic washing machines, dishwashers, water filters are all examples of R&D efforts that had a successful outcome. Who would have thought that mosquitoes would provide an opportunity for new product development in the form of mosquito mats, repellent creams, vaporizers etc.

Digital photography has made the conventional technique redundant. Computers have confined the typewriters to the museum. E-mail has rendered the snail mail defunct.

The world moves on only through scientific inventions and discoveries which are result of sustained R&D effort. Only this leads to long term business sustainability. Sometimes R&D efforts are also necessitated to meet the regulatory norms eg: green technologies that reduce pollution. Hybrid cars,

electric cars, catalytic converters in cars are examples of successful R&D efforts. The true test of R&D function lies in time to market. Business exists for the sake of making profits. So, the role of R&D in shortening the time to market becomes extremely important. Unless the R&D efforts in the lab cannot be scaled up within a reasonable time frame, little can be expected in terms of the functional credit to be assigned to R&D.

In India, the problems faced by R&D functions are one too many. It is high time the scenario changed. Germany is known for world class engineering and US is known for its research agenda. India, despite having a talent pool, still lacks in indigenous research.

R&D becomes extremely relevant to make an organization future ready, to equip the business with the wherewithal required for commercialization of lab efforts through large scale production.

R&D function can reasonably predict future technology trends. In an environment filled with resource constraints, R&D efforts in the right direction will enable allocation of scarce resources for the right purpose.

R&D helps a business earn revenues through licensing of technology, technology transfer too. The information technology has developed so much in the last few years that change has become the norm in such sectors. There needs to be greater coordination between academic research and industry research.

Companies tend to focus more on "development" and less on "research" mainly to meet short term operational goals. It must be understood clearly that R&D has a strategic orientation and using the R&D function to meet short term operational goals is anything but a wise move. Some firms use R&D as a cost centre because of the depreciation allowance given by the Income Tax dept. This is indeed sad.

The expenditure in R & D should not be taken as a waste and the team in R & D department should be respected all over the organization, since it is found members in other functional departments like Production, Sales, Accounts feel that R& D people are doing nothing but taking fat salaries. Organization should always appreciate and acknowledge the R & D team so that they can innovate new ideas, products beneficial for the company. It is also not necessary that R & D people should be Post-graduates, Doctorates only, anyone with clear vision can do wonders, say for example Mr. Steve Jobs of Apple, Mr. Bill Gates of Microsoft and so many others. In fact, that in R&D Team the Scientists should be those who have burnt their fingers!

The aim

- And all the above are to create new Products to face the competition, to sustain in global market with Brand name.
- To increase market share especially in Export Market and leads to higher growth and profitability.
- To acquire Modern Technique for easy operation with minimal manpower and it should be more viable techno economically.
- To reduce cost at every aspect, say power, maintenance cost (without compromising quality and safety).
- To develop human resources with a view to right man at right place for the right job with expert and skill hands.
- To increase Production without any further investment that reduces costs indirectly with better utilization of the machineries.
- To increase innovative ideas (KRA) among the employees which leads to constructive thoughts and better outputs. It benefits both Managements and Employees which leads to career growth.
- Long-time sustain even in recession. Growth must not be held up.
- There should be always Technology development through innovative ideas looking to the business strategy and goals. To set up Quality aspects looking to the International Standard and to act accordingly.
- There should be continuous Trouble shooting and stringent Process Control system so that no wastages, no quality down gradations can happen.

The Mode of Implementations

All the innovativeness, R&D activities are to be implemented in the Industries where top CEO to the Grass root level technicians are to be involved. It requires joint efforts otherwise will remain in black & white only.

- The Industries should collaborate/ joint venture with the International Level Researchers. Say RIL collaborated with Du Pont Technology. Like car Manufacturers collaborated with Suzuki, Hero Honda, that will lead the organization at the top of the Global level.
- Within the Industries self-motivation should be generated. KRA should be given top priority in the Organizations where growth is not limited. This brings growth by small changes, growth in quality, costs reduction, system developments, increases alertness among the employees, increases innovative ideas and reduces frustration among the employees.
- The Expert opinions are to be invited; interactions with the employees are to be developed for maintaining the freshness among the employees.
- The Employees are to be taken part in Quality Circle, visiting Machine Exhibitions, undergo trainings at various stages and the innovativeness will grow. These all come in the 1st and 2nd category of innovations.
- There should be Talent Management.
- In Textile Industries (The Author belongs to this Industry) in India, very few fundamental Research are being done. The fundamental Research are done mostly in Italy, Japan, China, Germany, Belgium, Switzerland etc. where the new and Modern machines with new Technology were developed. The TRA's have done works mainly on category¹.
- In Textile Industries, whatever the R&D are being done, they are hired/ copied Technology with a view to reduce Cost & Manpower, increase efficiency and quality and to increase Market potentiality.

The Case Studies

The author being an Industrial expert with sound knowledge in Research & Developments likes to highlight some case studies conducted directly by him which benefited the Industries and fall in the category¹.

- We obtained cotton waste from paper industries and lime waste from the ETP of Bhansali Polymers. We made bricks out cotton waste with the lime acting as binder. The main feature here is the utilisation of wastes from industries. We also experimented with cement as binder. We got bricks which are light and very strong (the breaking strength is 3 time that of mud bricks). Those made with lime as binder, also are self-cementing i.e. put the bricks one on the top of the other without any mortar, the bricks bond very strongly. The bricks can be made waterproof by applying a coat of paint (which is made from bhilava nut shell liquid, a forest produce). Because of the compact structure the bricks are also fire resistant. This is just innovative idea to reuse cotton waste (which is just a waste) and to reuse.
- Reuse, reduce and recycle is the Industrial Slogan today. The POY and PTY waste used to be help in producing the pillow and soft toys. Now there is breakthrough Innovation that POY wastages are recycled in producing again POY with similar characters. Similarly, PET (Polyethylene Terephthalate) bottles are also recycled and shirt buttons, bottles are manufactured.
- The effect of Humidification and yarn properties: This Project was carried out to prove that with modern technic of Humidification, with better distribution & circulation of air, the cotton yarn quality can be improved. The Management implemented it and Export quality improved.
- Techno economic of High Speed Texturisation Machine. The Project was carried out and proved that higher the Machine speed, higher is the economic Benefit although the Power and maintenance costs go high. It was implemented by several Industries including RIL.
- Developed modified cross-section POY through continuous polymerization and direct spinning process. (In RIL, Mauda, Nagpur and in Patalganga Plant).
 - Increased the polymer and POY plant output by >35% above the rated capacity through process optimization and minimal equipment modifications.
 - Converted extruder lines to Direct Melt Spinning through in-house design and execution.
 - Introduced polymer modification and 0.6 dpf micro denier PFY (first time in India) through in-house development activities. (falls in the category No. 2)
 - Major areas of process and product development were:
 - New Generation 3 (NG3) process and resin development.

- Cationic dyeable (CD) polymer from PTA route in CP.
- Dope Dyed POY developed
- Deep dyeing easy dyeable polymer in BP and CP.
- Short cut PSF for concrete reinforcement applications.
- Optically bright polymer.
- Modified cross-section yarn for anti-crush pile fabrics.
- Helicoil (3D) permanent crimped bi-component FDY.
- Full dull POY developed.
- (i) Modifying polymer by increasing cross linking, it increases production by 5%. The polymers are linear and by putting additional chemical "mono pentaerithritol" the cross linkage increases and hence production increases.
- (ii) When the melt spun comes out from spinneret it is hot and 5-7 cm area is not quenched (delay quenching). Hence, 2-3% extra draw is possible, speed can be increased from 3000mpm to 3200 mpm. Then normal quenching can be done to stabilize the polymer.
- Lycra yarn produced (Imported Technology).

All the above products are highly in demand and it was possible only through R&D activities and innovative ideas among the Officers and supported by the CEO.

Conclusions

- The Industrial Growth is possible only by emphasizing on R&D Activities. It should be a Nonstop Process.
- The business Practices can be sustained with continuous endeavour to innovativeness.
- The growth should be continuous to stand and to face the Global challenge and encouragements are to be given to all categories of the people.
- Various types of Joint Ventures, Collaborations, techno transfer, Exchange are to be adopted to run the business.
- The Textile Industries are facing tremendous challenges because of less Innovation. The Technology is by and large dependent on other countries. TRA's must be more innovative.
- The sky is the limit for the growth and innovations. It can be encouraged right from the College education.

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