

Packaging, Marketing and Selling - The Three Imperatives of Indian R&D

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Abstract

The conventional axiom of research 'Publish or Perish' needs to be changed. The new rule is 'Market or Perish'. Increased competition, technological advancement and the changing sophistication of customer need have forced the India R&D organisations to reorient their approach. And rightly so, because if you are not market savvy you are out of the market.

Despite world class technology on drugs, vaccines, catalysts and polymers Indian R&D organizations have failed to make their presence felt internationally on a scale they deserve. Indian R&D organisations have the scientific expertise, technology and potential for knowledge creation. They need orientation for competitiveness and market savvy in order to excel.

The present paper attempts to highlight this vital aspect through a study of premier CSIR labs situated in Eastern part of the country with special reference to a Dhanbad based one. It is based on observation, personal interviews as well as literature survey.

Key Words : Customerization, Brand-mania, Proactive, Research & Development, Paradigmatic, CMRI.

Prologue

The Indian Government's success some years ago in the revocation of a 1995 patent on turmeric in US was significant for more than one reason. Though it did not accomplish something extraordinary, it definitely pointed out to a major weakness of the Indian R&D

organizations considered to be the repositories of knowledge. Time and again, it has been established that the weakness of Indian R&D lies not so much in its quality and sophistication as in its marketability and what is now called customerization-customer focused communication.

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In these days of intense and cut throat competition, packaging and marketing hold the key to salability of an idea, product or service. Customers are so obsessed with brands these days that they suffer from kind of 'brand-mania' (a coinage indicating an extra sensitivity for brands). The interesting instance given below sums this up very succinctly. Sunday Times, the famous England newspaper carried an exercise with Booker prize winning novel 'In a free state' written by V.S.Naipaul, the Nobel Prize winning author. The opening chapters of this book were resent to the big publishers under a pseudo name with a request for its publication. They rejected the request unanimously. The book that was worthy of Booker was considered not fit for the publication because the author was a nobody. The ultimate lesson to be learnt here is 'build a brand and sell trash'. Such is the power of a brand.

The Indian R&D organizations have not yet been successful in creating a high brand equity in the global market. As knowledge process outsourcing (KPO) flourishes; it is important for the Indian R&D organizations to realize that even the best of the ideas have to be packaged and sold a la G.B. Shaw. Little wonder, Knowledge Management is emerging as a key area in the knowledge economy that has dawned. If Indian R&D organizations have to arrive on the global scene, they need to understand that creation of knowledge is not enough. Knowledge marketing is equally important.

The Present Scene

What the market forces have done today is that they have changed the role of R&D from a relatively isolated function in a linear process to a much more integrated one in a parallel technology and product development process. This transition shifts the emphasis from technology push to market pull and makes R&D a strategic issue in its own right that must be aligned with all other components of corporate strategy.

Post liberalization India has witnessed free entry of foreign enterprises and investments resulting in high quality consumer products for consumers. Automobiles and electronics were the most noticeable among them. To remain in competition the Indian industries as well as industrial R&D have to gear up for the challenge. Scarcity of funds with the government makes the problem more acute and government funding of R&D will become more stringent in days to come. R&D institutions will have to arrange funds for themselves. And herein lies the role of effective marketing practices. R&D organizations have to be proactive in order to be competitive. The age old adage Necessity is the mother of invention- is no longer valid. Rather, it has been made

to turn on its head. Invent first and create necessity through marketing. Remember Kerry Packer, the man who gave one day cricket. And cricket will never be the same again. The gentleman's game became a gladiator sport. Ironically, Kerry Packer was not from a Board of Cricket Control of any nation nor even a cricketer. He was a marketer. From mobile phones to mineral water, ideas came first and became necessity later. Indian R&D organizations need to be proactive.

In such a highly competitive era, it is unrealistic to expect user industry to wait for development of indigenous technology when the same is available across the table from foreign sources. At the same time, it is also true that Indian industrialist will accept indigenous technology if it has an edge over the competition, costs less and is available on time. However, the perception of the Indian R&D, in the minds of the consumer, also needs to change and the R&D organizations need to come out of the 'also ran category.'

Major changes in the policies relating to collaborations and technology transfers have altered the scenario. Import is facilitative and collaborators can now invest up to 51% of equity and are allowed to use foreign brand names. These changes have resulted in an increase in foreign direct investments and import of technology. Naturally, marketing and brand building is needed in a big way.

The purpose of R&D management is to promote innovation as well as wealth creation. In the last few years R&D activities have seen several changes in approach and several new management methods have been adopted by industrial houses. In today's scenario, global monitoring agencies such as WTO have added a new dimension to competitiveness. Against this backdrop, managing R&D has a special significance since wealth creation and innovation need to go together.

Increased competition, technological advancement and the changing sophistication of consumer needs have led to organizations seeking fresh approaches to the traditional challenges of operations and production management. It is imperative, therefore, that R&D activities be reoriented to meet the demands of the market that have become highly competitive. The focus must shift to managing and marketing the R&D to the potential customers. The conventional axiom of research today is "Market or Perish".

Statement of the Problem

In India, scientific and technological research is primarily concentrated in public- funded institutions like the Council of Scientific and Industrial Research (CSIR)

where the demand for profit, growth and accounting respectively require that research activity is directed, at least in the long run and more often in the short run, towards the solutions of practical problems. These external tasks provide, to a great extent, the stimuli, growth and justification of scientific work.

India needs technology for competitiveness and going by a report prepared back by PHD Chamber of Commerce and Industry, around 90 percent of our industrial production is based on the imported technology and just the remaining on indigenous efforts. However, it will not be fair to state that Indian R&D efforts are worthless. The problem lies not in creation of R&D knowledge but in their marketing. This is the reason why even hundred percent Indian knowledge comes back to us under foreign patents. The legend goes that Sir J.C. Bose lost to Marconi because he failed to market his invention first. Moreover, our inventions have been found to be less acceptable to the user industry. More due to the perceived than real quality. The same weakness continues to plague our R&D efforts even today.

This perhaps is the reason why despite world-class technology on drugs, vaccines, catalysts and polymers, Council of Scientific and Industrial Research (CSIR) fails to make its presence felt internationally. Indian R&D organizations have the scientific expertise, technology and potential for knowledge creation. They need orientation for competitiveness and marketing savvy in order to excel.

The R&D personnel are required to understand the market very carefully, and need to develop marketing skills. In these days of Social Darwinism, consumer friendly response is critical for any organization engaged in selling services or products. The R&D organizations do both. They need to convince the customers that their prescription is the most effective and efficient proposition. Since selling is key to survival, R&D personnel must be effective marketers and thoroughly familiar with the marketing processes and practices.

The globalization process has intensified competition. Only superior quality of knowledge will provide the competitive edge. But making this knowledge accessible to all is important for a developing country like India. Another imperative is to identify strength areas and create a niche through them. This requires effective marketing strategies. When competition is world class marketing becomes crucial.

Interfacing Research and Development (R&D) and marketing is an issue that is largely seen as being related to the issue of transfer of technology from the

R&D organizations to the industry. Technology transfer is the process by which technological innovation efforts initiated in the R&D laboratories fructify, get commercialized and contribute to the national economy. However, Management of Research and Development (R&D) projects are an increasingly complex task. Technology transfer is one vital link in the innovation chain. For public sector R&D laboratory system like that of CSIR in India, the issue of technology transfer cannot be looked in isolation. It is a part and parcel of the overall management of the research and development projects taken up in these laboratories.

From the early focus on the development of technologies for self reliance and of import substitution products, CSIR in the recent era needs to confront the threats of liberalization and globalization. This calls for Commercialization of CSIR Knowledgebase and customization is an important strategy.

The strategic purpose of R&D is to -

- a) Defend, support and expand existing business,
- b) To drive new business and
- c) Broaden /deepen technological capability.

The methodologies adopted to achieve these goals might vary in their details from one organisation to another, but in principle they agree to a large extent across a wide cross- section of companies.

The present trend towards globalization and international competition implies that a major reorientation of research strategy towards process and product development must take place. This strategy can be pursued in a single laboratory or in a consortium of laboratories and can involve basic research, applied research, and incremental/ engineering research including quality improvement. This is more so because transfer of technology is not an isolated occurrence that can be tackled by only looking at the final stage of the transfer of the technology from the public funded R&D laboratory to the industry. It encompasses the entire gamut of technological innovation management and therefore, can be considered only in its totality. Thus, it becomes imperative to appreciate the paradigmatic shift towards strategy innovation for survival, maintenance and growth of CSIR. The corporate character of CSIR is almost entirely built upon the performances and functioning of the laboratories functioning under CSIR. In light of the above, the present research was carried out with the objective of studying, existing and required marketing practices.

The CSIR laboratories of Jharkhand region namely National Metallurgical Laboratory (NML), Jamshedpur, Central Fuel Research Institute ((CFRI) Dhanbad

comprised the sampling frame and the authors' acquaintance, familiarity and interaction formed the basis of this study. Observations thus made are authentic. However, empirical data was also collected and the Dhanbad based Central Mining Research Institute (CMRI), the premier research lab was chosen as the representative.

With the liberalization of economy in 1991, the technology policy was given a new thrust in 1993. The focus included environmental aspects, use of safer technologies, special technological support to export oriented sectors, greater role for R&D, improving management of R&D institutions and providing them with special incentives with lesser government control. New opportunities were thus created. But to take advantage of these opportunities, organisations engaged in R&D need to change their ways of functioning.

In the new free market economy, the old style of going through import statistics to find out, what product is being purchased from abroad in substantial quantities and then developing it locally is no longer valid. Formerly any Research and Development (R&D) product that involved import substitution could be sold. Today R&D must be market oriented if it has to succeed commercially. In fact R&D itself can and should be marketed to external clients by CSIR, IIT and university laboratories. Even R&D laboratories of commercial firms have to market their technology to internal clients: production and marketing departments and top management. Marketing has been defined as the satisfaction of customers' need at a profit in line with the marketing institutions' overall objectives.

Research Methodology

Objective

In the changed economic scenario, every organization in India needs to be self sufficient, and provide for its existence and growth. For that they have to reach to the customers and fulfill their needs. Earning revenue by the organization is highly dependent on the customer satisfaction. Also, customer satisfaction leads to good image of the organization or in other words, brand value of the organization increases with satisfaction of the customers. This is true for both product/ manufacturing and service organizations. R & D organizations that largely come under the service sector have to realize the importance of brand building.

The problem at present is not with the knowledge required for R & D but in their marketing. We are poor at brand building, and this perhaps is the reason why we

do not have many takers. Apropos to the above, the basic objectives of the present research were:

- a) To carry out SWOT analysis of the R&D labs,
- b) To identify the reasons for weaknesses in marketing of R & D,
- c) To suggest measures to improve it.

Methodology

To achieve the above mentioned objectives, a few aspects of marketing pertinent to the R&D organizations were analyzed. Views of existing and potential customers were taken through a structured questionnaire.

Some senior and middle level scientists of CMRI were interviewed. The information thus gathered was supplemented with secondary sources comprising available literature and knowledgeable people. On the basis of this information a detailed strength- weakness-opportunities- threats analysis was carried out to study the market potential and thus, find out the possibility of increasing the competitiveness of the organization. Emphasis was given to understand the core areas of the organization and possible diversification needed.

Major Findings

Strengths

CMRI is one of the national laboratories funded by the government of India. However, it renders its expertise and services in the form of sponsors/ consultancy projects testing and evaluation services and earn about 70% of its budget. It has created a name in the mining field and is widely recognized as a major consultancy services provider.

Goodwill

CMRI carries strong goodwill among its public in general and professional peers in particular. CMRI gives due importance for its image building. For image building CMRI takes care of stakeholders, e.g. Government, CAG, parliamentarians. Media is one of the important tools from publicity and image building point of view. CMRI maintains its good image among the public through news release and display advertisement in the newspapers. It also organizes seminars/ symposium/ R&D get together to keep its good rapport with its professional peer.

Intellectual Input

CMRI records its intellectual input in the form of IPR, copyrights, registration of its development and disseminates its result through research articles and

journals in India and abroad. The organization also sends scientists to participate in seminars and symposia both in India and abroad to increase its visibility.

Manpower

R&D work of the institute depends on the contribution of the scientists and researchers. CMRI is having about 120 scientists, 170 technical staff and 110 in the administration.

Infrastructure

CMRI is well equipped with the latest instruments and facilities for undertaking R&D projects in the areas of mining and allied sciences. Some of the instruments and facilities of the institute are best in India.

Customer Satisfaction

Satisfied customers are the biggest assets an institute can possess. CMRI maintains a feedback file to know the customers response and is fortunate to have many satisfied customers. It takes active interests in seeking customer responses to its products and services.

Weaknesses

Government Rules

CMRI being a part of central government has to follow bureaucratic rules laid by the government. These at times become handicap for the institute. Rules may delay project, as all the paper movement is through proper channel. Many a times valuable opportunities are lost in procedural wrangles. Further, being still not fully independent on the finances from the organization, many a times has to forego opportunities which call for a bit of risk.

Job Security

Considerable security of service acts as a dampener to entrepreneurial spirit. Moreover, administrators are unable to act against employees who do not maintain their work standard etc. Further, individual initiative is not rewarded commensurately as rules come in the way.

Though there are reward systems for incentives and innovative scientists these are used sparingly. As there is no penalty system for scientist who do not maintain the work standard of the institute. Even the good workers are demotivated and individual initiative wears out. The percentage of effective contributors to R&D creation is still low and rate of patent filing as well as registration is not up to international standards.

Opportunities

Liberalization

Liberalization has opened up the market. Now the institute can work for any friendly country with least governmental interference. Considering the vast market, CMRI has lot of scope. All that is needed is to explore the market and carve a niche.

Privatization

With the ongoing process of disinvestments and privatization a new work culture is setting in with lot of modern technology and effective management system. This is viewed as an excellent opportunity. As new entrepreneurs with modern outlook enter the scene CMRI can take advantage by aggressively marketing itself.

Threats

Open Markets and Competition

A pessimistic but a more realistic way is to view liberalization as a threat as even the domestic market has been exposed to the outside world. Now cheap and better technologies are flooding Indian markets. This has become a matter of great concern and the institute has to face capable competitors.

CMRI faces competition from other governmental institute like ISM, CMPDI and private parties that are also engaged in R&D work.

Rigid Costing Structure

Industrial problems referred by clients are solved by CMRI on cost basis. This, however, is rigid and many a times customers are lost due to this. Cost is based on input that has two components: actual physical input, and intellectual input. Other costs include overheads and institutional charges. Physical input includes man days spent by scientist and other staff, consumables, raw materials, equipments, external payments, contingencies, travel expenses etc. Man day rates may vary according to grade and are fixed as

Scientists EII and above	Rs.3000 per day
Scientist B to Scientist E I	Rs. 2000 per day
Others	RS. 1000 per day

Consumables, contingencies, external payments and travel expenses are according to actual estimate. Estimating utility and equipment charge is subjective. Intellectual fee is estimated according to projected intellectual input.

Analysis and Interpretation

CMRI, as the name implies, is primarily carrying out research and development activity for mining industry. Specialisations are already there with CMRI in various disciplines of mining, which include Mining methods, Rock Mechanics and Ground control, Roof support system, Mine subsidence, drilling and blasting, Mine ventilation, stowing, Miner's health and safety, Mine mechanization, Explosive testing, Flame proof and Intrinsic safety apparatus, Miner's helmet and shoe testing, Mine water and mine air analysis, Preparation of mining plan, Mine surveying and subsidence control, etc. In each department, persons with long experience are retiring and it is must that they should share their experience with young entrants to make further progress. Simultaneously, CMRI should get apprised with modern microprocessor and sensor based instruments to perform the fieldwork more efficiently.

Presently, CMRI is in collaboration with Defence Research and Development Organisation (DRDO) to work in the areas of sub-zero mining and underground space technology of remote parts of India, especially in Kashmir. The institute is working on some new methods of mining like wide stall method of mining. Nitrogen-infusion to control fire is the area in which ventilation department of CMRI is making good progress. Recently, under Save Jharia Project, the institute has worked on war footing in controlling sub-surface fire in coal in Jharia Coalfield. All these activities are adding to the core competence of the institute and make the backbone of CMRI stronger day by day. Unless this core competence is refined and updated with time, CMRI will lose its standing in the areas of mining research. This will lead to loss of marketability of the institute not only in mining fraternity but also among its collaborators.

Strategies and Suggestions

Satisfaction of Customers' Needs

If customers' needs are to be satisfied, a close interaction between R&D and its potential clients is indispensable. No R&D laboratory can afford to exist in an ivory tower insulated from the commercial activity taking place around it. It is sometimes argued that since the scientist has to provide the intellectual output, he should not be burdened with commercial problems. In this case he has to rely on the marketing department to tell him what the customer requires. Or, in government laboratories, a separate administrative department is set up to interact with existing and potential clients for the transfer of technology. Neither of these systems is satisfactory since in both of them the R&D person gets only second-hand information. A more direct interaction

of R&D with the market is highly desirable to get a better appreciation of the real needs of the customer. In order to do this successfully, the scientists who are otherwise capable need to hone their skills in the following areas-

Marketing and Public Relations.

Communications

Customer Relationship Management

It is these skills that will help the scientists to enhance the marketing capabilities of their R&D institution.

Diversification

In the present circumstances, development only in core area is not enough as far as credibility and self sufficiency of the institute are concerned. The institute has to take timely decision to diversify its activities in allied areas as per the needs of the customers. In past CMRI has also done it. After the Promulgation of Environmental (Protection) Act 1986, environmental consciousness in India grew exponentially and CMRI did not lose the opportunity to have its contribution in this area. By 1992, CMRI had well established Environmental Management Group with twenty scientists and fifteen technical assistants and supporting staffs. Different areas in which the work is on progress are air pollution and control, water pollution and control, noise pollution and control, Environmental Impact Assessment and Environmental Management plan, Soil quality testing Green belt design, etc. Good number of Environmental problems from mining and other allied industries are referred to the institute annually. At present Environmental Management Group is among the prime earning division of CMRI with largest technical and overall manpower. Thus, timely diversification of CMRI in the field of Environment started paying its dividend right from 1994 and has substantially contributed to the external cash flow of the institute.

A similar major diversification has been undertaken by CMRI in the IT sector. Role of information technology in mining sector is gaining momentum and accordingly CMRI has created a new department of information technology. Qualified persons have been recruited for it. However, it is still premature to judge its efficiency and its influence on mining industry. Modern mining communication system and early warning system are in development stage, and it is expected to be in market within two years from now. In a nutshell CMRI is keeping pace with time to make tactical diversification decision to maintain and to further improve its marketability.



Creation of R&D Need

Industry in general is always involved with day to day work. There are set procedures for almost majority of the work, wherein, an operator does the routine work under the supervision of some higher authority. In mining production and safety are the two key parameters of working efficiently. If a mine goes on continuously improving its production rate and meet the target set by the organization, then it is considered to be running on the right track. Similar, is the case with safety. A mine's working atmosphere and safety record are taken into consideration to evaluate its efficiency and its care for its employees.

Through R&D, the effort should be made to devise the ways and methods to increase productivity. CMRI has developed a number of new ground methods for extraction of coal in difficult deposits like fiery seams in Jharia. Similarly, new technologies have been developed by the institute for the extraction of mineral under difficult terrain conditions like that of the Himalayas. Mining at sub-zero condition is a prime research subject of Roorkee Unit of CMRI. The unit is making continuous progress in this direction.

Role of CMRI in Promoting Indian R&D

As a national laboratory, CMRI is engaged in development of mining methods with greater safety with economy and conservation and is one of the premier laboratories engaged in such work. CMRI is dedicated to the mining industry, so it has promoted Indian R&D in mining field by working on underground support system, explosives for open-cast and underground mines, methods of mining in coal and non coal mines and mine ventilation, to name a few.

Increasing Marketing of Indian R&D

With liberalization not only Chinese product but also technology has flooded Indian markets. Hence, there is an urgent need to take more initiative and also increase its brand value of Indian R&D institutions. Scientists should make wider use of Information and Technology, create a proper website and modernize the technology itself, which will help increase the marketing of Indian R&D. One step in this direction has been the acquisition of ISO certification by the CMRI. The CMRI is a premier R&D institution in the field of mining and allied technology, and acquiring ISO certification is certainly going to help the organization to enhance its brand

equity.

Given the existing infrastructure and goodwill, CMRI can make a strong market position in terms of mining technology. The institute is currently working for Ukraine and Nepal and many projects are on in the domestic market. CMRI has its patent filed with USA, UK, France, Germany and South Africa. ISO will help CMRI in competing internationally.

Considering the monopoly of US technology and bulk entry of cheap Chinese technology, India needs to redefine technology. We have been at a disadvantageous position because of governmental neglect and shortsightedness. After 50 years of independence we are still struggling to arrive. Our technologies need to be modified and overall R&D setup needs to be changes given a fresh impetus.

Liberalization has effected adversely in India's technology market. The country has limited R&D infrastructure as compared to other developed nations, and thus only limited technology goes abroad. But other developed nations have flooded Indian market with their technology.

In the era of globalization the survival of the fittest is the rule of thumb. Efforts must be made to increase market share in the present competitive market. Every aspect needs to be looked from quality point of view. Marketing has to be more aggressive and clients must be reassured of technical sophistication of Indian R&D and its capacity to deliver.

Conclusion

Due to development of scientific institution of higher learning India has been credited as being a store house of intellectual capital. Its contribution to intellectual output does not match its reputation. Individual genius fails to reflect as R&D output. And the reason is just one - weak marketing. Despite strong presence in NASA and even world renowned companies like IBM and Microsoft the country continues to lag behind in the field of inventions. We lack what is commonly called the killer instinct- the trait that gives the cutting edge. For making an invention knowledge alone is not enough. It has to be cultivated and put to use.

We all know that India has abundant technical manpower, high level of intelligence and scientific talent, great technology institution, large industrial infrastructure, natural resources and good value system. We have already made many accomplishments in agriculture through the Green Revolution, milk production through Operation Flood, telecommunication, satellite launch vehicles, nuclear power

generation, guided missiles, super computers and advanced materials. Software engineering has become our core competence. Despite all the accomplishments, we have not been able to develop creative and imaginative thinking in our country. Creativity is not only the most important factor but a pre-requisite for making scientific inventions and innovations.

Thomas Alva Edison, who was granted 1,093 patents for inventions ranging from light bulb, typewriter and electric pen to his phonograph, motion-picture camera and alkaline storage battery had a career that illustrates how creativity can be cultivated. His methods reveal that the real keys to unlocking creativity are acquired traits- namely, perseverance and open-minded approach to learning. Edison used his creativity not only for developing new inventions but also for bringing them to the market and winning out financially over competitors.

In this context it needs to be seen why this sub continent has not been able to make many successful scientific inventions and most of the inventions from steam engine to super computers in the last two centuries were made in the West. Although there were people who innovated but there was no adequate acknowledgement or recognition of the work. Knowledge needs to be treated as an intellectual property or a marketable product and it has to be marketed. The R&D organisations must not only invent but market it.

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