

Organisational Practices for Innovation in Indian Industries

A firm level case study on Human Resources and
Work Culture

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Centre For Knowledge, Ideas, and Development
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Executive Summary and observations

Theoretical backdrop

DST study on NIS reveals, among other things, the ‘disconnect’ between the innovation support system and the production system indicating inadequate demand for supports to innovation. It also suggests that overall innovation scenario is predominantly ‘new to the firm’ in the form of adopting new machines. This necessitates a close look inside the firms.

The theoretical understanding for the study is borrowed from the literature spanning from Adam Smith to Gary Becker focusing on the human capital of the firms as the source of productivity gains through application of scientific and technological knowledge through human resources who know how to use them.

While human capital as determinant for firm level innovation has been largely ignored, a few available studies focus mainly on firms in developed countries suggesting a positive relation between innovation and level of education of the employees and training provided/arranged by firms. A few studies examined the same relations in case of developing countries with mixed results.

The present study on Human Resource aspects of innovative firms in Indian industries is designed broadly following the above understanding. A literature search has resulted about 63 studies (covering literature from 1980 to 2014) on Human Resource issues in Indian industries that we found somewhat relevant in the context of our studies. Most of them are from managerial guidelines, and do not concern the innovation aspects. Broadly these studies suggest skill shortage, absence of specialised training, skill shortage, talent development, career opportunities, attrition of manpower as weak areas that need special attention for sustainable productivity gains, especially in the SME sector. These issues, however, never examined from the perspective of firms’ growth and technology strategies.

The contributions of the present study, therefore, are four folds: It is more comprehensive, it reorients the study on firm level innovation from verification of determinants to activation of the determinants, and in that it brings into focus three aspects: How the employees are organized, how are they motivated to give their best – incentivisation, and how the alienation is allayed through employees’ participation in decision making. A questionnaire was developed accordingly to focus on this critical aspect, along with the perennial weaknesses indicated by the available studies.

Data and Methodology

The study is based on a questionnaire based survey of 129 firms chosen from the innovative firms identified in the National Innovation Survey from seven states, namely, Karnataka and Maharashtra (high innovation), Delhi and West Bengal (Medium innovation) Tripura and Bihar (low innovation), and Gujarat as a special case.

Firms in the Study

We have examined the question in terms of five attributes, namely, Types of Innovation (TOI), Size in terms of Turn Over (TO), Size in terms of Manpower (MP), Market reach of the firms (MktR), and Competition Intensity (CI) faced by a firm. The study claims novelty in inclusion of the last two attributes to capture the essence of Schumeterian theory of technological innovation.

- Broadly, about 65% firms claim innovation in ‘New Machine’ type, followed by ‘Process’ innovation (48%) and ‘Quality and Standard (45%).
- Size of the firms in terms of TO shows that about 43% firms have less than Rs 1 crore as TO, and 73% fall under less than Rs 10 crore category.
- When classified in terms of manpower (MP), about 68% firms have less than 60 Manpower, but about 20% firms have more than 100 manpower.
- Market reach of the firms with only local reach (36%) and firms with national market reach (38%) have more or less same presence in the study. 19% firm has claimed having reach in the international market.
- About 53% firms operate in a market with 20 to 60 competitors; and about 29% firms have competition with more than 100 firms. We, therefore, are dealing with firms not having any substantial market domination.

We have examined three broad questions:

- A. How is the Human resource endowment of the firms is organised
- B. How is it nurtured
- C. How is it used for gains from innovation

A. How is the Human resource endowment of the firms is organised

The focus is on how human resources are organized within the firms being studied. We look at the human resource endowment of firms, technical and non-technical manpower, how they are deployed over departments, addition, and attrition of manpower.

Endowment and deployment of HR

- 90% firms do not have any innovation department, 85% do not have any R&D division. In case of 43% firms more than 60% workforce is deployed in the shop floor.

This is indicative of the fact that maintaining production capacity is the main function and concern of the firms; typical of firms operating in a competitive market condition, where firms survive by adopting practices that are in vogue in the market. This is consistent with the findings from NIS, which shows ‘New Machines’ as major mode of innovation coupled with innovations that are new to firm.

Share of technical manpower

- 35% firms do not have any technical manpower even in the production units. However, about 19% firms have 80% technical manpower in the production units.
- Firms claiming Product innovations show higher share of technical manpower, followed by firms in Process innovations, and New Machine types.
- Firms having more than Rs 50 Crore TO showed higher share of technical Manpower in Innovation and R&D. Number of manpower (employees) as size of the firm also shows some upward trend in the share of the technical manpower in R&D and Innovation with larger size of the firms.
- Shares of technical manpower show upward trend for the firms having international market reach for HR, R&D and Innovation departments. For rest of the departments, however, trend is downward for firms having international market reach. It is somewhat indicative of the higher technological strength needed to reach international market.
- Share of technical manpower decreases in all departments for firms competing with number of competitors beyond 20.

There is indication that firms involved in product and process innovation are more inclined to employ skilled manpower. Also demand for skill increases with higher size, and wider market reach of the firms. It is also indicative of the fact that adequate impetus to growth and availability of skilled manpower coupled with wider market reach can make SMEs more innovation oriented.

Mobility of Manpower

- Mobility of manpower in terms of numbers added and number of attrition does not show much movement of technical manpower. It is even less in the case of non-technical manpower. The scenario does not change much when examined in terms of innovation types.
- In terms of size of the firm (TO) larger firms show more addition and attrition compared to smaller firms for both technical and non-technical manpower. Similar is the trend when size is measured with MP.
- There is addition of technical manpower in cases of firms with local and international market reach.
- There is almost no mobility of the non-technical manpower when examined with competition intensity. In the technical category, there is mobility more or less in similar proportions between addition and attrition.

A few studies that are available on Human Resource issues in Indian SMEs also indicate the lack of mobility of manpower. In effect it indicates the lack of technology related activities in Indian industries. As we shall see that the same is reflected in technology initiatives of the firms, and also in skill development through training of manpower.

B. Nurturing Human Resources

We examine the extent of Informatisation; role of the employees in Decision Making; Incentives and Facilities; Training and Skill development.

Extent of Informatisation

Flow of information within the firm is an important way of involving the workforces in the activities of the firm with a sense of belonging. We have examined the extent in terms of ICT enabled MIS. Most of the firms claim ICT enabled MIS in place with MIS as separate departments and inclusive of all employees. In percentage terms Firms are more or less equally distributed over different types of innovation. However, in terms of size (TO as well as MP) a positive relationship between size and informatisation is visible. The same positive relation is visible in case of market reach. It is interesting to note that there is indication of a negative relationship between intensity of competition and informatisation. A NASCOM study on ICT application in Indian SMEs, however, suggested that having ICT might not be seen as application of ICT for management. Our survey also has confirmation towards this through conversations with respondents.

Role in decision making

Proprietor or owner of the firm is the sole decision maker in overwhelmingly large number of cases; and it is the same for all five attributes. This is also reflected in some of the available studies on Indian industries. Although most of the firms claimed that MIS includes most of the departments and staffs, involvement in decision making is not inclusive.

Incentives

Incentives towards employees have been studied in terms of Salary, Help in children Education, Health facilities, Job Security, Stake in the Company, Role in Decision making, Training opportunities, New Skill Development, Career Prospect, Financial Reward, Stake in the gains from innovation. Most of the firms, across the five attributes claim matching the industry practices. Children Education as incentive is less practiced than other forms of incentives. Some upward variations are noticed in New Skill, Training, and Financial rewards for larger firms and firms with wider market reach.

We have further probed the training programmes elaborating on departments getting benefit of training and also where are they trained. About 30 % firms do not provide any training to their employees. Production division has largest share of trained manpower, followed by administration and marketing departments. Irrespective of departments, trainings are mostly inhouse, and in case of minor percentage of firms, it is with govt. agencies; and the picture does not change across the attributes.

The overall picture that emerges is that all the firms claiming the same extent and types of incentives, there is no industry leader as attractive employer. The industry in general does not provide career prospect, or skill development; most of them do not access the available training and skill development opportunities. As such, from innovation perspective, the scenario is not encouraging for gains in productivity or growth.

C. How is HR used for gains from innovation

We have investigated the technology related strategies of the firms and implications on Human Resources. Issues investigated are: Firms' strategies for growth and winning competition; the kind of support requirement envisaged and sources; sources of information/knowledge; linkages for technology initiatives; and constraints encountered.

Strategy to win over competition

Technology upgrade and workers' motivation followed by better cost management appear to be most important components of the strategy to win the competition. While this is true across the five attributes, it is more pronounced in the case of larger firms and also for the firms with wider market reach.

Support envisaged and sources

For technology related supports, namely, new technology, New tools, Testing facilities, Consultancy, raw material, etc. firms depend mainly on private agencies. Government agencies are mostly approached for finances and consultancies. There are cases of approaching foreign agencies for technology and testing facilities. Linkages with the support agencies are mostly continuous, except in the cases of consultancy and testing services.

Technology Initiatives and sources

As for technology initiatives most of the firms consider R&D as important and in this regard, national Laboratories are considered as important source by about 20% of firms, followed by Universities and collaborators by smaller percentage. Industry Associations, Supplier and Vendors and Client companies are the main sources of information/knowledge for fairly good percentage of firms.

Constraints

Lack of institutional support is considered as the most important constraints for innovation, followed by cost of innovation. Liaison with government has been seen as important deterrent towards innovation. It is interesting to note that workers' union does not figure at all as any constraint to growth.

Policy and Action

The study does not present a very encouraging state of affairs for Indian manufacturing sector. Gaining grounds would require going back to the policy drawing board. The state of affairs of the innovation in the manufacturing sector (SMEs in particular) requires to be seen in terms of the future and emerging global scenario. In an increasingly globalised industrial activities, and fierce cost and technological competition from emerging economies like China, the road ahead is to infuse new products, improved products, new technologies and new skill sets.

Need of the time

There is a need to create policy incentives for the firm to grow bigger; the most important impetus for innovation. At present the policies are biased towards remaining small. The fear is that the bigger units will eat up the smaller ones. The policy is short sighted. It presumes the present industrial activities, the basket of products manufactured as the universe and unchangeable. In reality the globalised industrial dynamics offer a potential product basket that is infinitely expandable with new products.

Issues to be addressed

The study indicates what the production sector suffers from. Indian manufacturing sector, particularly the SMEs are in an interesting and intriguing crossroad. We have tremendous technological achievements in the high tech areas along with a large pull of scientific and technological manpower that apparently is one of the major attractions for MNCs towards India, on the other side the production system suffers from practices that are archaic and far away from utilising the available scientific and technological knowledge pull. Becker in his seminal work 'Human Capital' argues that increasing reliance of industries on scientific and technological knowledge greatly enhances the value of education, technical schooling, on-the-job training, and other human capital. At the same time Becker writes, 'New technological advances clearly are of little value to countries that have very few skilled workers who know how to use them.'

Imperative

It is, therefore, imperative that the manufacturing sectors require help to gear up with new product ideas, new technologies and required skill sets, strong networking with technology generating system, harnessing human capital for creating innovation dynamics inside the firm.

Rejuvenating the Support System

As has been revealed in the NIS study, the existing organisational arrangements are created to provide support to wide spectrum of innovation needs. At the same time the study indicates the fact that such support system becomes rare as we move from the national level to the region/district levels, and therefore becomes ineffective, as it is reflected in the disconnect between the innovation support system and the production system.

DICs as Industry Commons

The new initiatives like ‘Make in India’, ‘Skill India’, and ‘Start up India’, have renewed the thrust towards strengthening innovation support system at the regions. The same, however, may fizzle out in the absence of a suitable organisational set up that can consolidate the need of new product ideas, new technologies and new skill sets for the generally defeatist manufacturing sector.

District Industry Centres (DICs) can be considered to be revitalised with a new mandate to undertake such tasks at regional/district level. DICs can be transformed to function as ‘Industrial Commons’, as hub of new product, technology, and skill. DICs can be seen in network with the technical institutions around it for accessing the available expertise. This would require a blue print for organisational transformation of DICs.

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