

Strategies for Taking Indian SMEs Upward in the Innovation Value Chain: An Evidence Based Policy Analysis

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Summary for policy makers

As perhaps the most important source of large-scale employment generation, Small and Medium Enterprises (SMEs) hold a critical position for India. However, in spite of several initiatives and incentives by the Government, the full potential of SME in India has not been realized. CSIR NISTADS carried out a multi-sector survey and analysis to develop an evidence-based policy advocacy to enhance SME competitiveness and employment portfolio.

A major problem of Indian SMEs is found to be their weakness to leverage science and technology solutions through employment of qualified scientists & engineers and research collaborations with Academia & Government research institutions. Another weakness is their

low spending on available knowledge in the form of R&D equipments, technology license, patents, industrial process design, copyright, trade mark and standards. As a result Indian SMEs are not able to introduce quality products in the market and remain at lower end of innovation value chain.

This policy bulletin presents NISTADS policy advocacy for improving competency and employment portfolio in SMEs, taking them upward the innovation value chain. The advocacy emphasizes the need for incorporating science and technology knowledge base through financial support as well as mechanism for SME-academia- R&D interactions, with implementable recommendations.



The CSIR-NISTADS SME Survey



Data-Based Policy Advisory to increase competitiveness and employment portfolio of Indian SMEs

The CSIR-NISTADS conducted a nation wide random sample survey of SMEs to generate their manpower profile and to assess their capacity and capability for bringing innovative products/process in the market.

Goal: To increase competitiveness of Indian SMEs through implementable policy interventions

Methodology: This bulletin highlights the trends emerging from the survey of 1200 SMEs. The coverage of the survey was national; SMEs in 23 states of the country were covered in the survey belonging to sectors like- Manufacture of wearing apparel; textiles; computer, electronic and optical products; auto components; leather and related products. The objective of the survey was to uncover the determinants that

are critical for SMEs growth; to come up with policy suggestions that would address some of the concerns like enabling them to move up the value chain and strengthening linkages with big firms. Manpower employed by the SMEs vis-à-vis their competitiveness and employment potential was also a focus area of the survey. Therefore the questions were formulated to collect data related to financial sources, manpower, products, customers and R & D collaborations.

Policy suggestions: The effectiveness of the solution lies in enhancing linkages with upstream (government research institutions, universities) and downstream supply chain, enhancing skill set of workforce, opportunities for valuation and licensing of their intellectual assets. SMEs do not have the wherewithal to

exploit market opportunities beyond their states which constrain them. Proactive support from financial institutions thus has to cover various

dimensions and not restrict only to capital. It should also help to support institutions that can address the gaps raised above.

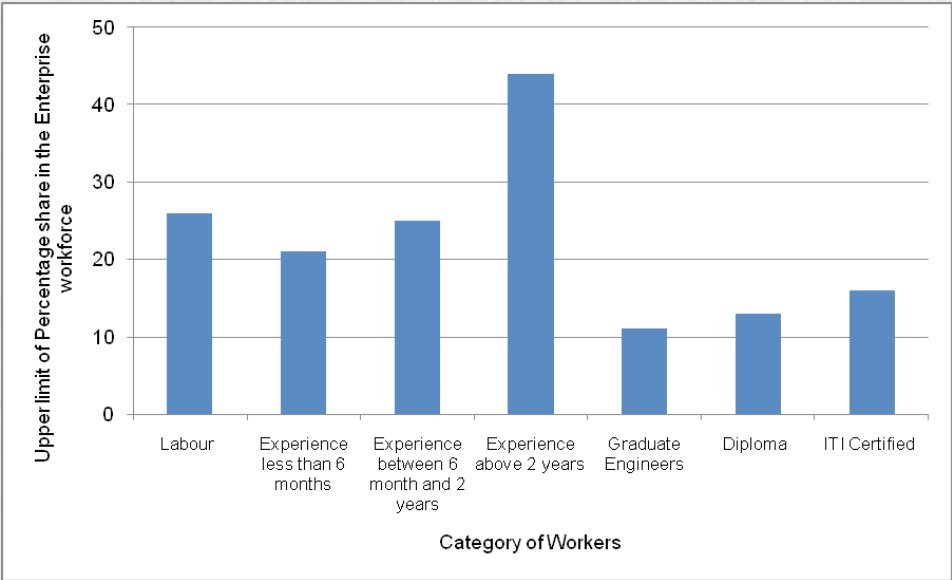


Fig. 1: The average maximum percentage for different categories of manpower employed in SMEs. e.g. upper limit for graduate engineers employed in an SME is 11%, it means that SMEs in India employ no more than 11% of graduate engineers among the total manpower employed

1. Sources of Finances: SMEs were asked to rank various sources of finances (Private Banks, Nationalized Banks, Co-operative Banks, Money lender, Retained earnings, Suppliers & Contractors and Friends/Relatives) on a scale of 1 to 3, in terms of preferences. The responses were counted and % age wise number of Enterprises is shown in Figures (2 a, b,c).

Key Findings: Nationalized banks have emerged as first preferred source of finance for most number of enterprises, followed by private banks. Very few enterprises are now approaching money lender for finances. Co-operative banks have emerged as third most preferred source of finance for these enterprises.

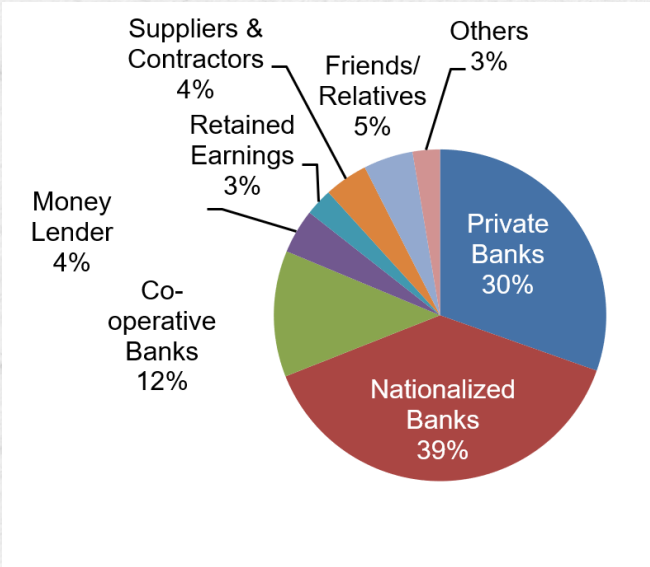


Fig 2(a) First most preferred choice as indicated by SMEs, which they would like to approach for finance in the first instance.% represents portion of SMEs out of total SMEs covered in survey

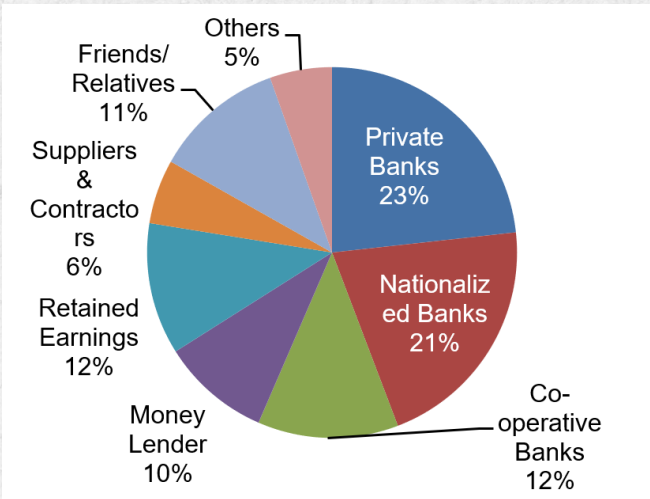


Fig 2(b) Second most preferred choice for finance i.e. if an SME doesn't get financial support from the source opted in the first instance, then which source of finance it will prefer most to approach as 2nd option

Implications: It can be seen from figure 2a that internal retained earnings for SMEs are limited and thus they require external sources for capital. A positive outcome is that SMEs are approaching institutionalized sources for finances like nationalized banks, and to some extent private banks emerging as most preferred sources. Cooperative banks have very low preference in terms of numbers as compared to nationalized and private banks. Cooperative banks are the key instrument for finalizing small-sized units. SMEs often find it difficult to access to formal sources of external finance, despite this, their preference to move to these sources for finance indicates that improving access to these sources of finance can provide SMEs with level playing field with big firms. Lack of preference for financial support from cooperative banks is a matter of concern.

Policy Suggestions: Financial institutions should be more enabling and proactive for supporting SMEs. Information about new financial instruments should be widely disseminated. Cooperative banks need to be strengthened to play a more effective role.

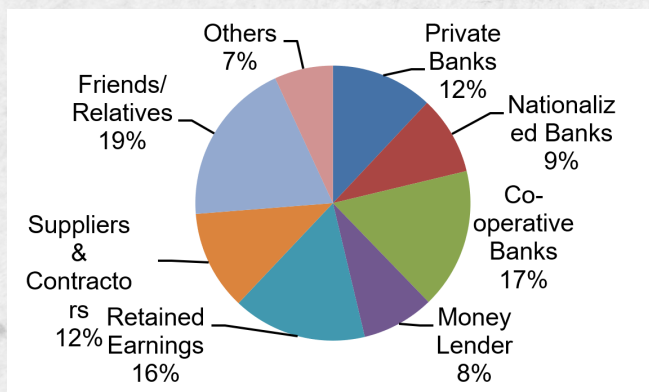


Fig. 2(c): Third most preferred source of finance. i.e. the source opted by SMEs for finance if they don't get financial support from the first two opted sources

2. Linkages with Big Companies: SMEs sometimes get work outsourced to them by big companies (Source Companies) Such SMEs depends upon these source companies for assistance in certain areas of work. SMEs were asked to rank these areas of assistance in terms of how frequently they get assistance from source companies in that particular area (Figure 3).

Key Findings: Product Design emerged as the most frequent area where source companies assist SMEs, followed by Product Material and Marketing.

Implications: Emergence of Product Design as the most frequent type of assistance received by SMEs from big companies indicate that emphasis of collaboration between SMEs and large companies is more on product rather than process innovations.

Policy Suggestions: SMEs technological capability in product design can enable them to become more competitive. Government support system to SMEs should also be directed towards this aspect.

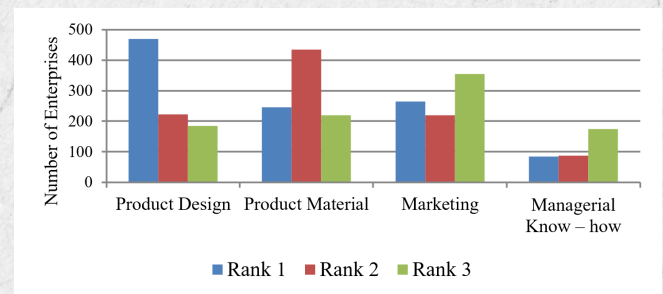


Fig. 3: Frequency wise ranking of dimensions of assistance received by SMEs from the source companies

3. Nature of SME Innovation: SMEs were asked to rank various innovation activities in terms of frequency (Figure 4).

Key Findings: Figure 4 shows that new Product Development and Product Modification are the two most frequently undertaken activities in terms of innovation being undertaken by SMEs; Process Improvement has emerged as third most frequently undertaken area of activity.

Implications: New product development is contingent upon other factors like efficient use and availability of alternative materials, process improvement, etc. The positive direction of SMEs towards new product development will be impeded if the other above factors are not strengthened.

Policy Suggestions: SMEs competing in the market through new products can make them successful. This can be strengthened if Government policies provide support to SMEs in all aspects of the value chain for product development.

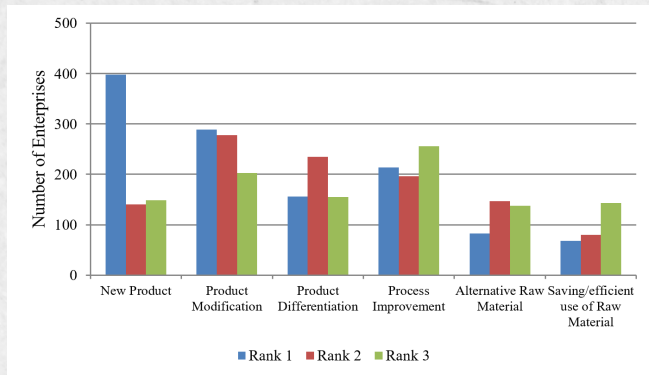


Fig. 4: Ranking of Innovation activities in terms of how frequently they were undertaken by SMEs

4. Drivers of innovation: In this context SMEs were asked to rank various entities in the term of how many times these entities were able to trigger innovation.

Key Findings: The trigger for innovation came from external sources rather than internal initiatives from within SMEs. Figure 5 highlights that large domestic customers acted as main drivers of innovation for SMEs.

Implications: SMEs need external agents to trigger innovation initiatives taken up by them. Customer feedback has been an important trigger of innovation for SMEs. It is also an indication that majority of Indian SMEs are catering to the needs of Indian customers only.

Policy Suggestions: Institutional mechanisms need to be created for enhancing other sources of innovation where in government policies can be an enabling factor.

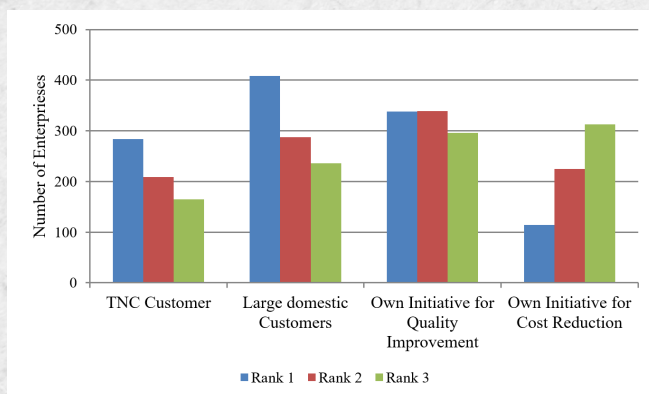


Fig.5: Important Drivers of innovation for SMEs. Drivers of innovation here mean how frequently they were able to motivate SMEs to undertake innovation

5. Actors of innovation within firm: SMEs were asked to rank various personnel in terms of frequency with regard to their involvement in the actual process of innovation. Emerging trends are shown in figure 6.

Key Findings: Middle level workforce like supervisor and foreman emerged as the most important internal actors in the innovation process.

Implications: Emergence of middle level workforce as major actor in the innovation process calls for creating opportunities for skill enhancing at this level.

Policy Suggestions: Government policies can create schemes for fiscal and non-fiscal incentives and opportunities for skill enhancement of supervisors and foreman in SMEs.

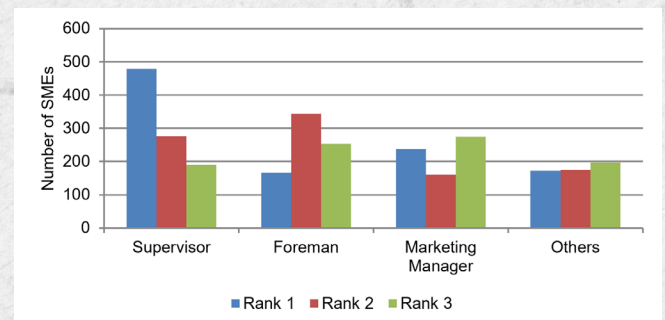


Fig. 6: Actors of Innovation (for developing new processes/ products) within the firm. Actor here means person involved in the process of innovation

6. Manpower profile of SMEs:

Manpower profile of SMEs emerging from the survey reveals the following:

Key findings:

- SMEs with higher share of Diploma holders were able to introduce higher number of new and modified products in the last 3 years
- SMEs with more number of experienced workers were found to sell more products as compared to those having less number of experienced workers
- Share of Qualified Engineers and Diploma holders is less than the other non- graduated manpower
- Expenditure done on training of manpower doesn't seem to influence the rate of growth of SMEs in last five years

Implications:

- SMEs seem to rely more on skill set of workers rather than the domain knowledge of the workers however this hints that they are at the low level of value chain
- They are not able to fully harness the potential of Qualified Engineers in their domain, this hints at the lack of inclination towards moving at the higher side of value chain. Lack of market demand, resource constraints like limited capital may be the other factors responsible for not hiring qualified engineers.

Policy Suggestions:

- Qualified manpower can be an influential factor in overall eco system of innovation promotion in SMEs. They should be encouraged and enabled to hire more qualified engineers and diploma holders in their domain. This will help SMEs in moving up the innovation value chain, at the same time generate employment opportunities as SMEs make bulk of industrial enterprises in India.

7. Share of total sales in Government departments and within district, state and exports:

Key findings:

- Share of total sale to Non-Government sources is higher than the sales towards Government sources

- Majority of sales take place within the state
- Only 27% of sales are done outside the state
- Only 8% of total sale is done outside country
- Sales done outside the country have positive influence on Rate of Profit

Implications:

- Most of the SMEs are catering to the need of local market only
- Government departments' potential as a buyer for SMEs is still not fully realized yet
- SMEs in India are not inclined to explore markets outside their state and international market

Policy Suggestions:

- Measures to be taken to promote Government Departments as potential buyer for SMEs goods and products
- SMEs should be given training to upgrade their product quality and marketing techniques to sell their products outside their states and to export to other countries

8. Expenditure on innovation activities:

Key findings:

- SMEs expenditure on creation of knowledge through Research Collaboration with academia and Government Research Institutions; and acquisition of externally developed knowledge is low however this expenditure shows a positive influence on rate of profit
- Expenditure done on knowledge acquisition and knowledge creation activities has also shown a positive influence on rate of growth of turnover in last 5 years
- Spending more on knowledge acquisition and knowledge creation activities has also shown to influence export capability of the SMEs

Implications:

- Low expenditure on R & D Collaboration indicates that Indian SMEs tend to undertake non- R & D innovation rather than R & D based innovation.
- Indian innovation ecosystem has not been able to forge strong linkages between SMEs and academia & Government research institutions. This may be one of the reasons

for their being on low end of the value chain.

Policy suggestions:

- Research collaborations between SMEs and Indian academia and Government research institutions should be promoted

- SMEs should be made aware of the externally developed knowledge available in the form of R & D equipments, Technology License, Patents, Industrial Process Design, Copyright and trade mark standards

Overall Policy Recommendations

1. Facilitate developing research collaborations between SMEs, academia and Government research institutions for increasing SMEs capability and competency
2. Measures to be taken to promote Government departments as potential buyer for SMEs goods and products
3. SMEs should be given training to upgrade their product quality and marketing techniques to sell their products within & outside their states and to export to other countries
4. SMEs should be made aware of the externally developed knowledge available in the form of R & D equipments, Technology Licenses, Patents, Industrial Process Designs, Copyrights and trade mark standards
5. Financial institutions should provide more enabling and proactive support to SMEs

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ISTIP: First Study of its kind focusing on various dimensions of innovation activity in India; aiming at providing valuable inputs for S & T and Innovation decision making.

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