Promoting Innovation in SMEs of Assam

CSIR-NISTADS Survey

Suggesting policy interventions

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Assam: It's Socio-Economic Importance

Assam the largest state among the eight states of the North-Eastern (NE) region has potential for emerging as the hub of growth and development for the whole region and the country. Its unique advantages are its vast natural resources (mineral deposits such as highest deposit of limestone), biological diversity (one of the biodiversity hot spot), vast water resources including hydel power potential; proximity to S.E. Asia (one of world's fastest growing region of the world); literacy above national average; rich heritage of handicrafts; well developed sericulture (highest producer of Muga silk and Eri raw silk); and unique community spirit and democratic traditional system of local self-government. In spite of this huge potential, the per capita income of the region including Assam is ~ 30% lower than the national average and the region contributes only 1 - 2% of India's total trade with its eastern neighbors. (*https://www.pwc.in/assets/pdfs/publications/2014/gateway-to-the-asean.pdf accessed on 24.05.2018)*

SMEs for Growth and Development

A key determinant for growth and development of this region including Assam would be strengthening the SME sector as they are among the highest employment providers, significant contributors to GDP and manufacturing output. An intrinsic strength of SMEs is that they can be set up with very little amount of capital and they have the locational flexibility. This is evident from the fact that SMEs along with micro enterprises at national level are estimated to employ 6 crore people through 26+ million enterprises producing over six thousand products. Together they contribute 8 per cent to the country's GDP, 45 per cent of the manufactured output and 40 per cent of its exports. They have much higher labour to capital ratio and can lead to inclusive growth *(Strategic Action Plan of MSME Enterprises, 2018)*.

SMEs: Constraints

NISTADS Survey Highlights

NISTADS has conducted a nationwide random sample survey of SMEs in five sectors namely manufacture of wearing apparel, manufacture of textiles, manufacture of computer, electronic and optical products, manufacture of auto components and manufacture of leather and related products; to assess the capacity and capability of SMEs in the country in these important areas. In total 1200 firms were covered with almost proportional distribution across the five sectors. This Policy bulletin is based on 53 SMEs covered in Assam under that survey and describes the trends emerging from it. The SMEs covered under survey were selected randomly and field assistants were sent for the survey. The received questionnaires were validated by multi-approach: card of each firm, brochures and other details if available, random telephonic contact, and audio recording of respondents' identity.

SMEs in Assam in the identified five sectors primarily operate in Textiles (wearing apparel), computer systems and peripherals, Shoe making, Manufacturing of LED Monitor, Speaker System Printers, Manufacturing of Regulators and Wires Steering wheels.

Various studies have identified the constraints that impede SMEs competitiveness. Smallnessof size, fund availability, obsolete technology, lack of interdisciplinary skilled manpower, lack of awareness on IPR Issues have been identified as major constraints. They are found to be more vulnerable to changes taking place in Government tax regime, free trade agreements at global level, changes in labour policies and infrastructural bottlenecks.

One of the most important challenges before SMEs is to keep innovating in the wake of constantly growing competition due to free trade agreements and free movement of goods across the countries. But this is not easy to achieve as they have limited internal resources and also do not have enough capability to have a formal R & D structure. So there is less structured approach to innovation.

SMEs in Assam: Some Insights

In-spite of SMEs potential for inclusive growth, only 1.5% of total SMEs in the country are in NE region, out of these 80% are in Assam (compiled from MSME Annual Report 2017-18). The key challenge is to create SMEs in sectors/areas of high potential and also to make them more competitive so that they can bring new innovative products in the market. A strong government policy thrust is visible in this regard i.e. to develop the industrial capacity of NE with special incentive for promotion of MSME. The North-East Industrial Development Scheme (NEIDS) 2017 with financial outlay of Rs. 3000 crores up-to March 2020 is one major initiative. It is aimed at generating employment and encouraging MSMEs with tax breaks such as 3% interest subsidy on working capital, central capital investment incentive amounting to 30%. *(http://pib.nic.in/newsite/PrintRelease.aspx?relid=177822)*. Policy incentive has also tried to address the key constraint to the growth: poor infrastructure and limited connectivity, both within the region as well as with the rest of the country. A key input to the 'success' of this policy is to assess properly the factors that are inhibiting the SMEs, and suggest policy interventions that can help them to innovate and bring new products in the market. The bulletin contributes in this direction.

Innovation Strategy for SME: Open Inbound Innovation

Acquisition of externally generated knowledge can address the scarcity of internal resources to carry out formal R & D, it can fill in the missing knowledge gaps, reduce cost and risk of development, and quality of product. This acquisition of externally developed technology and knowledge base through technology licensing, procuring of patents, industrial design and copyrights etc.; and through R & D collaboration with universities and Government Research institutions can increase their innovation capacity. This phenomenon has been named as Open In-Bound Innovation by scholars where a firm combines the externally generated technology and knowledge base with its internally generated knowledge base in order to achieve innovation. There has been an increasing trend across industries that more and more SMEs are engaging in these activities for acquiring externally developed knowledge base. A review of earlier research on SMEs suggests that SMEs all around the world have been able to increase the pace and quality of their innovation capacity through Open In-Bound Innovation.*(Panagiotis Piperopoulos and Maura Mcadam, 2006)(Vinit Parida et al, 2012)*

Action Points for Government and SMEs in Assam

- Invest more on industrial design and machinery, equipment & software
- Creating institutional mechanisms for SMEs to collaborate with R & D institutions and academia
- Dedicated government skilling programme required for SMEs in technology pricing, IPR and developing business models
- Fiscal and non-fiscal incentives required to motivate SMEs in Assam to invest in knowledge related activities
- Creating institutional mechanisms that can help SMEs exploit the new schemes announced by the government for the NE region.

In the survey the Inbound open innovation activity was measured through expenditure done by Assamese SMEs on purchase of license, patents, industrial process design, copyright, non-patented inventions, and trade mark standards. As all these items (license, patents, industrial process design, copyright, non-patented inventions, and trade mark standards) represent knowledge base developed outside the firm. Therefore expenditure done on these items can be taken as an indicator of efforts put in by these Assamese SMEs to acquire externally generated knowledge. Data was also collected about the expenditure done on R & D collaboration with universities and Academia. The emerging trends out of this data are described in following sections.

Findings

Expenditure done by SMEs on the items representing external knowledge base was divided into different ranges and SMEs were grouped in these ranges as per the expenditure done by them. Distribution of SMEs doing expenditure in various ranges of the amount spent has been shown in Figure 1.

It can be seen from the figure 1 that most of the SMEs invested in the range of 0-5 lakh for in bound open innovation activities. Very few SMEs spent amount exceeding Rs. 5 Lakh

Mean expenditure done on knowledge acquisition activities related to acquisition of external knowledge is between 1-3 Lakh. A Right Tail Z-Test at 98% accuracy was conducted assuming the mean expenditure done by all the Assamese SMEs on knowledge acquisition activities is less than or equal to Rs. 2 Lakh, and the Z Values were calculated. Since all the Z-Values fell in the acceptance region of the normal distribution curve, resulting in acceptance of the null hypothesis, that SMEs in Assam spent less than Rs. 2 Lakh on knowledge acquisition activities in 2015-16. The expenditure done on knowledge acquisition activities was calculated as percentage of turnover, the results are shown in Figure 2.

Figure 2 shows distribution of SMEs in various ranges of expenditure (as percentage of turnover) on activities for procuring external knowledge. It can be seen from the figure that most of the SMEs spent 0-5 percent of their turnover on activities for procuring external knowledge.

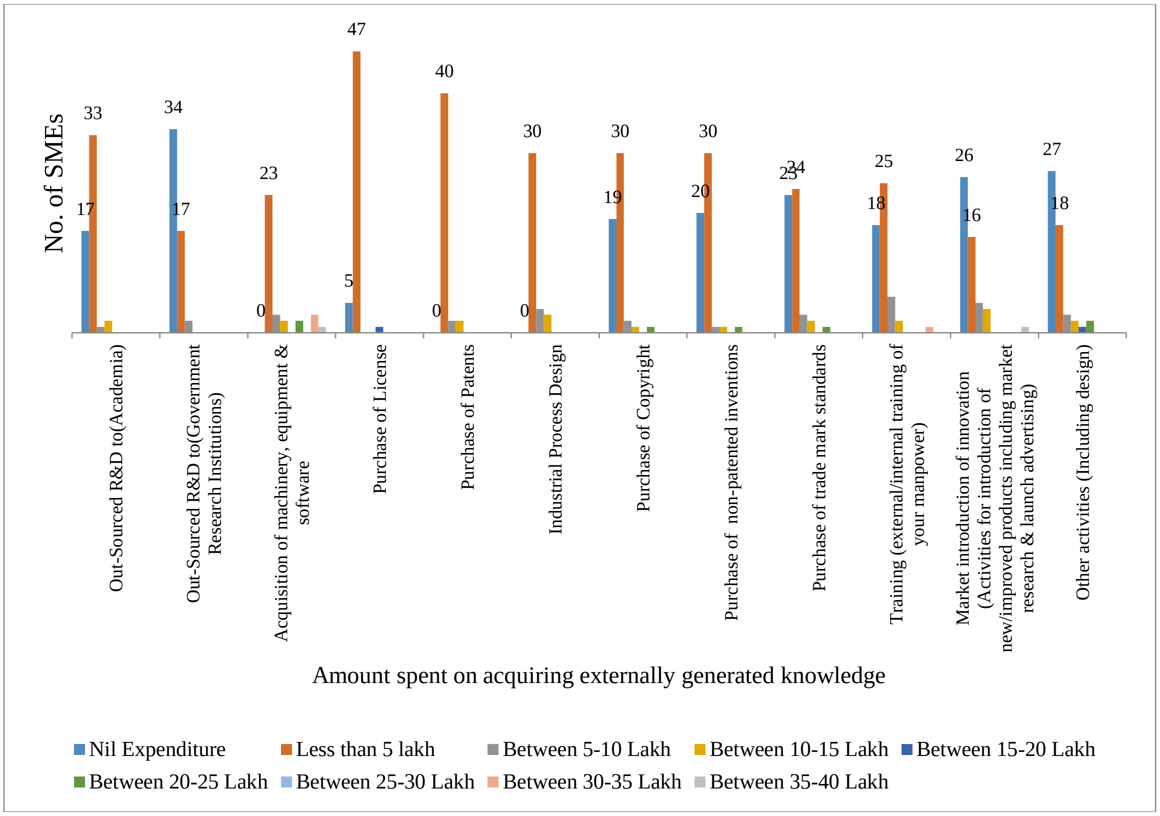

Figure 1: Number of SMEs as per the expenditure done on knowledge acquisition activities(2015-16)

Correlation test was conducted to test how significantly the expenditure done on knowledge acquisition activities is correlated with the turnover, profit earned and innovation performance in terms of 'totally new products and modified products introduced in last 3 years' and 'number of different products sold by SMEs'.

Following results emerged out of the correlation test:

- Expenditure done on R & D Outsourced to Government Research Institutions has been able to influence the Turnover positively.
- Expenditure done on Acquisition of machinery, equipment and software has been able to influence the Profit positively.
- Expenditure done on procurement of Industrial Process Designhas been able to influence the Profit positively.
- Expenditure done on R & D Outsourced to Academia and on acquisition of machinery, equipment and software had a positive influence on New /modified products introduced by the firm in last 3 years,.
- Expenditure done on procurement of Industrial Process Design has positive influence on Number of different products sold by SMEs

The positive correlations emerging from data demonstrates the importance of Open Inbound Innovation.

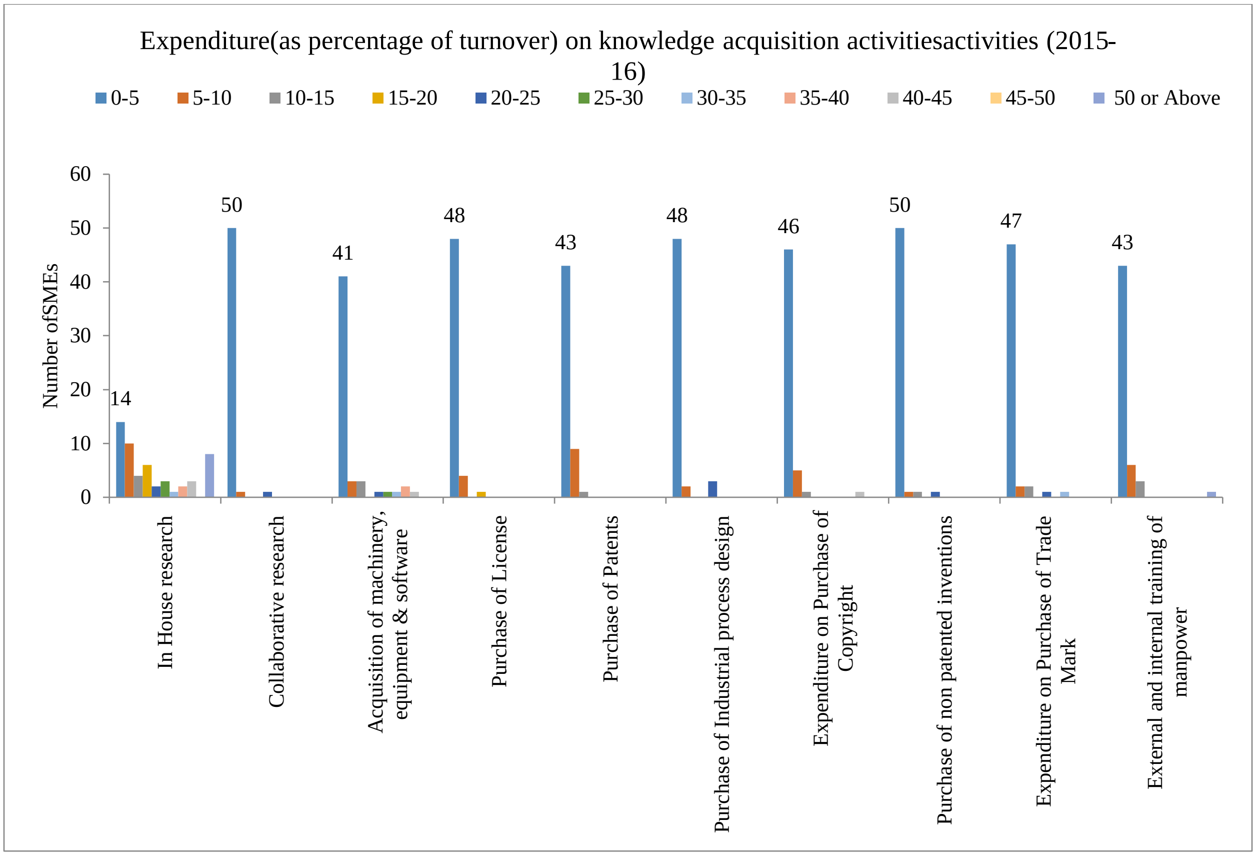

Figure 2: Expenditure (as percentage of turnover) on activities for procuring external knowledge

Conclusion and Policy Recommendations

SMEs in Assam are not making use of externally generated knowledge base which is available in the form of machinery, equipment & software, license, patents, industrial process design, copyright, non-patented inventions, and trademark standards. This is evident from the low expenditure done on purchase of these items. They are not making significant effort on skill up-gradation of their manpower and on proper marketing of their products. R & D Collaborations with academia and Government research institutions is also very low which is evident from the low amount of expenditure done on R & D Outsourcing to academia and Government Research institutions.

Another finding which emerged from the survey is that only the expenditure done on purchase of industrial research design and on equipment, machinery & software has been able to help in increasing the profits and their capacity to sell more number of products.

Externally generated knowledge has to be recognized, priced, acquired, assimilated and then applied effectively to achieve successful innovation. SMEs need to have what is called absorptive capacity for achieving this, for this they need to invest in internal R & D capabilities and enhance their managerial competence. Generally they struggle to acquire this externally generated knowledge due to technology pricing, IP related issues, and lack of negotiating capability. For SMEs in Assam, they are not making use of externally generated knowledge base which is available in the form of machinery, equipment & software, license, patents, industrial process design, copyright, non-patented inventions, and trademark standards. This is evident from the low expenditure done on purchase of these items. They are also not making significant effort on skill up-gradation of their manpower and on proper marketing of their products.

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