WADHWANI FOUNDATION

POLICY

Policy Research Centre

POLICY BRIEF

Promoting Innovation in MSMEs through Public-Private Partnership

Public Private Partnership in innovation by MSMEs: A growing trend

There is a growing realization that a strong and vibrant MSME sector characterized by high growth and continual innovation of products and processes can provide a strong foundation to economic and social development. However, it is hard for small firms to obtain funds for innovation because of the inherent risk of such projects, information asymmetry and market failures. It is increasingly been realised by governments, academicians and policy makers that public support to financing MSME research is critical. An increasing number of countries have introduced and robustly funded a broad array of agencies & programs to support the innovation capacity of their SME manufacturers. Following the global transition in the policy approach towards MSMEs, Government of India has also directed considerable efforts towards providing an impetus to technology innovation in this sector and has initiated several innovation programmes in Public Private Partnership (PPP) mode.

Rationale of PPP in innovation and the need for impact evaluation

Theoretically, government support of private sector research and development (R&D) through the program can be justified only if two conditions are satisfied: One, the social benefits associated with the funded research are sufficiently large to offset the social costs; two, the socially valuable R&D would not occur in absence of programme support. If policy makers want to justify public funding of private R&D they must carry out rigorous impact evaluations of these programmes and establish that the beneficiary firms actually accomplish more society benefitting innovations, due to public support.

The Small Business Innovation Research Initiative (SBIRI) and a complementary Biotechnology Industry Partnership Programme (BIPP)

Designed to encourage small businesses to develop new processes and products through a matching grants system, these complementary programmes have been initiated by the Department of Biotechnology (DBT). While SBIRI was launched in 2005, BIPP started in 2008. SBIRI aims at early-stage funding of MSMEs whereas BIPP targets large, high-risk projects, particularly in the MSME sector. These are arguably the largest and most comprehensively managed innovation led PPP initiatives in India, and are modelled on the US 'SBIR/STTR programmes', which have been replicated by several countries including the UK, Netherlands, Finland, Sweden, Korea and Japan.

- Under the programmes, SMEs and start-ups (under SBIRI) and all firms (under BIPP) are invited to submit their research proposals for consideration of funding by the Department

The research grants are awarded competitively based on scientific and technical merit. Proposals are usually evaluated by teams that include scientists & engineers who are well versed in the topic area being considered. Under the National Biotechnology Development Strategy, 30% of the DBT budget is set aside for funding the PPP programmes in R&D.

A systematic review of SBIRI and BIPP: Design and database

- The study evaluates the impact of the above programmes with regard to parameters such as the quality of the firms and research projects being funded, commercialization of the research, satisfaction of the beneficiaries with the programme, and the program's contribution to firms' growth. It also attempts to establish additionality by examining whether the funded companies would have undertaken the R&D without public support
- The analysis is based on fully-structured, online surveys of 80 beneficiary firms having 97 of 235 sanctioned projects.

Main findings

- **Characteristics of participants**: The SBIRI/BIPP programmes are targeting small, young and highly innovative firms, which have high potential for growth. There is growing evidence that high-growth, hi-tech firms are a key driver of net job creation and structural change. Thus, the social returns of public support to these firms are likely to be much higher than the cost

- **The quality of research:** The programme is highly competitive. The beneficiaries have to undergo a rigorous four step review process. Currently, the approval rate stands at 12%. This shows that only high quality projects are sanctioned
- **Creation of knowledge stock and intellectual assets:** With US $88 million allocated in public funding and an additional $131 million in private investment by recipient enterprises, these initiatives have contributed to a total public-private investment of $219 million
- **The programmes are contributing to the nation's stock of new scientific and technical knowledge.** Of the 35 projects surveyed, 10 are already completed. They have yielded 4 patent applications &
- **5 cases of commercialisation**. In addition, there are 5 phase-II applications. Similarly, of the 9 BIPP projects completed, 2 are already commercialised, 1 company has started further research and 2 are looking for funding for further research. Most notably, 2 patents have been acquired and 7 already filed. Overall, 10 product patents have been filed under SBIRI. On the other hand, BIPP has resulted into 14 patents with 3 patents already registered. The programmes are instrumental in fostering linkages between academic institutions and industry. We find significant involvement of public and private research organisations, and universities in the programmes
- **Benefits for the firms.** The programmes have assisted growth of firms. Our analysis of their responses shows that the beneficiaries perceive enhancement in their brand equity, goodwill and R&D activity. Increased sales, investments, and profits are also found to be relevant to a majority of firms. It is expected that the expansion of the firms' will have direct impact on increased demand, economic growth and net employment creation. The programme provides significant support for small businesses. Over 82% of the respondents rated BIPP and SBIRI like funding as the most preferred mode of funding in two separate surveys
- **Additionality,** we created a counterfactual scenario. We asked the survey participants if they had undertaken the project even in the absence of SBIRI/BIPP support. Over 70% of the SBIRI investors feel that the project in its entirety would not have been feasible in the absence of the programme. On the other hand, 50% of the BIPP beneficiaries would not have been in a position to fully undertake this research. Overall, our analysis indicates that the government support for innovation activity is seen by the industry as a critical factor in driving innovation

Constraints

- **Inadequate funding**: The award size is not sufficiently large to fund a project that is sufficiently innovative. Further, there is no support for commercialisation of technology. Finally, the funding structure is biased in favour of debt which is not preferable. Inadequate funding & severe limits on funding can affect the quality of projects and their commercialisation, thereby defeating the very purpose of these programmes
- **Bureaucratic delays:** There is no limit on the time that may elapse between application and final approval, or between final approval and release of grant. It is also observed that there is a considerable time lag between two instalments which stalls the progress of work
- **Rigid Attitude of the monitoring committee**: It is reported that the Expert Committee's attitude towards pre-specified milestones and introduction of changes mid-way in the innovation process is generally rigid. The performance evaluation is sometimes discretionary and in case the milestones are not met to the full satisfaction of the experts, funding is delayed/stopped harming the further process. Further, if there are substantial changes in the processes, its approval is to sought again which may hurt the progress of work
- **Lack of technical assistance:** Many cite inadequate technical assistance as a major constraining factor in successfully conducting the research process. Further, the programmes under scrutiny do not provide a platform for value creation networks with large players, vendors, suppliers, strategic consumer networks, national and international experts, and organisations that can be used for generating synergies for value co-creation

- **Absence of assistance for commercialisation:** One of the stated objectives of these programmes is to promote new science entrepreneurs. However, the programmes tend to only develop technology to a certain readiness level. Unless knowledge creation is connected with entrepreneurship through commercialisation of technology, the cycle is not complete and the success of the programme in creating new innovation-based, high-growth enterprises remains limited

Major Recommendations

➢ **Stimulate the innovation potential of MSMEs**

Small and medium-sized enterprises (SMEs) can play a decisive role in promoting competitiveness and dynamism of an economy. Innovative SMEs in particular have the potential to become the engine of entrepreneurship and economic acceleration. However, these enterprises often lack the information and marketing networks, technical skills and resources available to larger firms, which constrain them from realising their potential in innovations. Realising this, governments of leading nations have been striving hard to address the bottlenecks, and have actively encouraged and supported small businesses through PPP in innovations. Governments around the world can take a lead from these successes and actively engage in driving small businesses in their own country.

➢ **Identify and address the major PPP challenges, in innovation**

There are four major challenges that must be addressed in a comprehensive manner in the PPP model that is designed to stimulate innovations. These are:

- Mismatch between objectives of the public and private sectors
- Cross-cultural divide that exists in public and private systems
- Mismatch in speed of action. The money flow from the government is very slow and if one wants to promote innovation and wants to invest in the time space in which to perform the task, the mismatch in speed of action has to be addressed
- Partnership must be looked upon as a committed investment by both parties and one where mutual values are generated. All partnerships come with the responsibility of tying together complimental strings, otherwise they have the potential of becoming nightmares.

➢ **Integrate innovation with entrepreneurship development through PPP based programmes**

One of the stated objectives of these programmes should be to promote new technology-driven enterprises. Innovation with entrepreneurship is a brilliant idea for implementation. These programmes should not focus only on developing new technologies. Most major commercialisation successes (whether public or private) require substantial post-research funding from a variety of sources. It becomes difficult for firms to procure additional funding outside these programmes. Further, the process of taking new technology to the market is fraught with challenges and IP creators are often not well equipped to do this. In the absence of any assistance for technology commercialisation, new entrepreneurs find it difficult to carry the research forward. Unless knowledge creation is connected with entrepreneurship through commercialisation of technology, the cycle is not complete and the success of the programme in creating new innovation-based, high growth enterprises will remain limited.

➢ **Build a strong eco-system to create conditions for entrepreneurship development**

The strategic value creation networks, which rely on the relationships with large players, vendors, suppliers, strategic consumer networks, national and international experts and organizations are critically important in technology development. These relationships are the capillaries for the flow of resources and information. The PPP based programmes should not focus on funding alone but should target building and strengthening the innovation eco-system by forging links between various components of this system.

Further, the success of these PPP initiatives requires a larger number of young people who are willing and able to become entrepreneurs and successfully develop their own commercial or social ventures. Since education is key in shaping young people's attitudes, skills and culture, it is

vital that institutional reforms are introduced in the education system not only to help shape the mindset of young people but also to provide skills & knowledge that are central to developing an entrepreneurial culture.

➢ **Extend SBIRI/BIPP to other government departments and the states**

- As seen above, SBIRI/BIPP is a commendable initiative taken by the Department of Biotechnology. It has the potential of stimulating scientific & technological knowledge advances in the biotechnology sector by providing significant support to the small sector. It is essential that it be extended to other government departments
- Each programme implementing department should set aside a proportion of this funding for its SBIRI/BIPP programme. This will not require any additional budgetary allocations. This means that there will be no additional budgetary implication for the programme
- Finally, the state governments should adopt these programmes to address the state-specific issues using new technologies. As suggested below, contractual research mode may be adopted by the State Departments to invited private companies to participate in identifying technology based solutions to the state-specific problems

About 'Policy Research Centre':

The Policy Research Centre of The Wadhwani Foundation is based in New Delhi and undertakes the research on innovation systems, dynamics of innovation systems and innovation policies with a focus on participating in policy debates concerning innovation capacity and industrial competitiveness. Recently, the Policy Research Centre organized an insightful seminar on "Promoting Innovation in Micro, Small and Medium-Sized Enterprises (MSME's) through Public-Private Partnership (PPP) Programmes", in New Delhi. On this occasion, a study titled "*Promoting Innovation through PPP: An Assessment of SBIRI and BIPP Programmes*" the Policy Research Centre was unveiled by Dr. T Ramasami, Honorable Secretary, Department of Science and Technology, Government of India and Professor K. Vijay Raghavan, Secretary, Department of Biotechnology, Government of India. This Policy Brief is based on the findings of the above study. The full document can be downloaded from:

http://wadhwani-foundation.org/initiatives/policy/#publication