**Exploring Entrepreneurial Support Performance in Institutions: A Data Envelopment Analysis**

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Existing State-of-the-art: Institutions play a critical role in innovation and venture development in regional economies. Institutions deliver valuable human capital as graduates, intellectual capital as patent and research outcomes, and industrial outputs as research commercialization led ventures. Further, the role of institutions has evolved over the last two decades to comprise promotion of entrepreneurship and/or support the entrepreneurial ecosystem. Therefore, the performance of institutions in driving both entrepreneurial activity, and traditional research and educational outcomes could be studied as a multi input and multi-output phenomenon.

Research Gap: Institutional role and performance in entrepreneurial ecosystems are not adequately explored in extant literature with quantitative methods. Educational, industrial and entrepreneurial outcomes are generally not considered simultaneously when comparing the performance of institutions. The role of institutions in supporting entrepreneurship is important to understand, considering the global growth of investments into support structures like incubators and TTOs for venture creation. The research question is: How can we compare entrepreneurial support performance of institutions, as a contributor to overall institutional efficiency?

Theoretical Arguments: Firstly, ambidexterity exists between education/research outcomes vis-a-vis commercial/entrepreneurial outcomes. This can be seen at an institutional or personal level (Perkmann et al., 2013). Secondly, there is path dependence (as influence of pre-existing structure and interests) with respect to actions that institutions take, and this depends on age and legacy of the institution.

Method: Based on National Institutional Ranking Framework (NIRF) (2016-18) disclosures, we obtained data on applied science and research institutions across two key states in India. We compare venture emergence and support intensity of these institutions using non-parametric data envelopment analysis. This type of analysis does not assume a functional relationship between inputs and outputs (Charnes, Cooper, & Rhodes, 1978).

Results: We were able to identify and rank efficient institutions by explicitly considering input expenditures to produce various outputs. We were able to ascertain the relative contribution of entrepreneurial support to the overall institutional efficiency. The results indicated that resource endowment did not matter for the overall institutional efficiency.

From the analysis we suggest how institutions can improve their overall efficiency by promoting entrepreneurial support outputs and by scaling or mixing other outputs. Further, such an improvement can be achieved without impacting the traditional outcome contribution to the overall institutional efficiency.

**References**

Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research*, *2*(6), 429–444. https://doi.org/10.1016/0377-2217(78)90138-8

Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Brostr??m, A., D’Este, P., … Sobrero, M. (2013). Academic engagement and commercialisation: A review of the literature on university-industry relations. *Research Policy*, *42*(2), 423–442. https://doi.org/10.1016/j.respol.2012.09.007