Lean Innovation – Funding STEM education

Problem / Question
Does Lean Innovation provide a new avenue for funding STEM Education?

Hypothesis
- Traditional sources of funding have started drying up. To fill this void, Venture Capital & Private Equity have provided a new avenue for funding R&D through innovation and entrepreneurship.
- Empirical research may help verify whether STEM education may be funded through Accelerator-style funding

Project Overview
- NSF launched Innovation-Corps program in 2010. The American Innovation and Competitiveness Act, 2016 praised the NSF I-Corps efforts with France Cordova, NSF Director announcing a 14% jump in program funding.
- Steve Blank testified to the Congressional Committee on Science, Space and Technology (2012) that an unexpected result of lean Launchpad was an impact on the professor’s own thinking about how they teach science and engineering students.
- President Obama in State of Union Address (2011) launched Startup America program with a focus on research community to help stimulate the economy through innovation and entrepreneurship.
- Lack of accountability due to absence of comprehensive models that explain, measure and quantify intended beneficial impacts has lead to a shift from innovation-diffusion based research knowledge transfer to an active intervention based knowledge translation.
- It is expected that 75% of firms will have Bimodal capability by 2017: Gartner CIO Insights (2016)

Key concepts
- Lean Innovation
- Technology Transfer
- Innovation Funding
- Traditional Funding
- Corporate Venture Capital (CVC)
- Venture Capital (VC)
- Angel Capital
- Government Funding
- NSF I-corps
- Private Innovation Funds
- Corporate
- Institutional
- Angel

Variables
- Business
- Higher Education
- Government
- NSF I-corps
- Private Innovation Funds
- Corporate
- Institutional
- Angel

Motivation
- The researcher examined 117 MISTI variables from OECD website. The data was filtered by “Country” and “Year” to compare BERD against GERD and HERD variables to prove that traditional sources of funding are drying up.
- The researcher collected data from Venture Monitor, a report published by NVCA and Pitchbook. Page 7, 8 and 13 provide yearly data on Angel, Early-stage VC and Corporate VC respectively. More investment in CVC leads to higher contribution in innovation (Chemmanur et al, 2014).
- The researcher ran a scan through Pivot database with the keyword “innovation” to extract 1188 sources of innovation funding. These are then filtered by country, amount, upper limit and sponsor. The ten major sources of innovation funding are highlighted.

Methods
- While government expenditure on R&D has been on a decline, business expenditure on R&D has actually increased.
- Corporate Venture Capital groups have made huge investments as compared to Angel or Institutional Venture Capital groups. Higher investment in CVC leads to higher contribution to growth of innovation (Chemmanur et al., 2014).
- With NSF leading the charge, Innovation funding for STEM Education has seen huge interest from private sponsors such as Blackstone and IGL.

Conclusion
- Stone, V. I., & Lane, J. P. (2012). Modeling technology innovation: How science, engineering, and industry methods can combine to generate beneficial socioeconomic impacts. Implementation Science, 7(1), 44.

Works Cited