

**Final Progress Report**  
**Sustainability Science Program**  
**Term: September 1, 2013 – August 1, 2014**

**Name:**  
Livio Valenti

**Your field:**  
Public Policy

**Your degree program, institution and graduation date:**  
Master of Public Policy, Kennedy School of Government, Harvard University, 2013

**Faculty host(s) at Harvard name and department:**  
Prof. William Clark, Kennedy School of Government  
Suerie Moon, School of Public Health

**Description of SSP-related research activity:**

Creating thermal-stable vaccine: improving global health with breakthrough innovation.

I conduct research on innovation and access to technologies for sustainable development. More specifically, I investigate opportunities for bringing to fruition breakthrough university technologies that could have an impact on global health systems, with regards to i) thermo-stabilization of biologics drugs, ii) veterinary vaccine for developing countries adoption, iii) remote diagnostic technologies, iv) new vaccine delivery technologies (micro-needle patches and dissolvable oral vaccine formulations) and v) strategy to apply silk-based technology to consumer good products as substitute of plastic and sustainable supply of silk raw materials via partnership with consumer goods companies.

**Abstract:**  
Innovative technologies developed in university labs have the potentials to address mayor global health challenges, such as vaccine delivery, creation of new therapeutics drugs and diagnostic tools, as well as provide a platform for

**Identification of the problem you address:**  
Commercialization of innovative technologies that can have an impact on global health is hindered by the lack of financing and other economic incentives to make technologies available to whom needs them the most. Creating a new model for analyzing and assessing promising opportunities via entrepreneurial endeavors provides opportunities to move such products to market.

**Key question asked about the problem:**  
How to create sustainable business models that can address global health challenges, bringing new technologies to market effectively

**The methods by which you answered that question:**  
Case study development

**Principle literature upon which the research drew:**  
Case studies and other materials from university database, such as market reports and market studies (BCC, Kalorama, etc.)

**Empirical data acquisition description:**  
Interview of main stakeholders in the vaccine, biotech, venture capital and pharmaceutical fields.

**Geographical region studied:**

Global

**Recommendations that might be relevant for your problem:**

Entrepreneurial solutions are at the core of the push toward commercialization of science but the market failure pushes toward an emphasis on profitable segments of the market – and those not necessarily coincide with the maximization of global health outcomes. The creation of a global venture capital system to invest in new innovation would facilitate the push toward commercialization of technologies that can benefit all.

**A description of the final product you have/are aiming to produce:**

Finalized case study on governance in the global health system and the introduction of innovation with the potentials to improve the global health landscape. The case will focus on the potential for creating vaccines that do not need refrigeration and can be shipped and stored everywhere, lowering the distribution and other associated cold chain management hurdles.

**Please list citations for reports, papers, publications and presentations that built on your fellowship research:**

NA

**Please describe any collaborative activities with other SSP Fellows that you are involved with.**

I discussed and learned about the animal vaccine space in Brazil from one of the SSP fellows, and started to build on his knowledge in this space to enter a more sophisticated analysis of the veterinary vaccine market and the space for innovation in such field, including analyzing the linkages between animal husbandry and human health.

**Principal collaborators outside Harvard:**

- Vaxess Technologies, Inc.
- Center for Disease Control and Prevention (CDC)
- Task Force for Global Health

**List any awards or grants that you have received this year for the current or coming year.**

- Finalist of the Rolex Award for Enterprise
- Forbes 30 under 30 in Science and Medicine