

A START-UP CYCLE: PATENT TO PRODUCT TO PATENT



Project Introduction:

This project introduced students from diverse majors (Engineering, Agriculture and life sciences and Business school) to the basics of the technology transfer process, from starting-up a business, identifying the value propositions of technology, to discovering potential buyers/customers, supply chains and product effectiveness. This entire project was inspired by experience of Professor Lawrence Griffing and his associate, Dr. Krishna Kumar based on the NSF I-Corps program and their journey of producing a startup venture, Griffing Biologics LLC, based on their recent innovation.

In this project the students had to treat themselves as the product and their training and skill they have gained during study at TAMU as a value proposition. Their major task was to find out that whether their skill set was a product-market fit and if yes then in what industry wanted their skills. To complete this project they had to interview people from the academics or industry who have a need for their skill set. This entire course was designed to make them prepare for their future endeavor of finding a suitable job after the completion of their study.

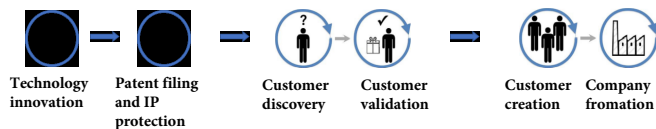
The second semester involved a sub-group of the students from the first semester. Their objective was to investigate a key element of getting the product to market, regulatory certification. They worked together as a team to explore the mechanism by which the product of Griffing Biologics could achieve certification as organic by the USDA.

Student learning objectives:

- Acquire background to transfer technology from lab to the market.
- Gain experience in interviewing to look for product-market fit.
- Introduce key concepts such as value propositions, customer segments, partners and competitors
- Learn the risk, uncertainty, and process of regulatory certification behind commercializing innovations.

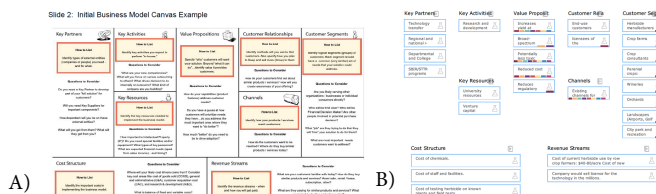
First semester practical background in Start-Ups:

- The students engaged in a weekly discussion class over Zoom on starting up a business. NSF I-Corps program materials and "The Startup Owner's Manual" by Steve Blank and Bob Dorf as resources.



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- After the discussion of every component of a startup students were asked to fill out the business model canvas (BMC). The Business Model Canvas (BMC) works as a strategic management tool to quickly and easily define and communicate a business concept or the innovative product. At the beginning the components are filled out based on their best guesses or hypothesis which later confirmed or falsified after interviews.



8YgdWZAn example of a business model canvas and their components with a short instruction to fill out A). Example of business model canvas of Griffing Biologics LLC, used to teach the students B).

- The top most reason for failure of a startup is making a product which nobody wants. In order to find the potential customers, students were given a target to interview at least 2-3 people each week and ask what kind of experience, knowledge and preparation fit their needs.

Conclusion - the student preparation as an innovation:

All of the students completed more than 10 interviews with potential decision-makers that would hire or accept them for post-graduate work, based on their preparation at TAMU.

The key was to get past the standard application form questions and get to needs of these "markets". Using that information, the students were able to determine, whether or not background or preparation at TAMU was a good product-market fit. Some of the students realized that additional training here, experience in the field, or high performance in certain classes could improve their chances for meeting the needs of these employers or admissions officers. This provided a real-world outcome of an experience that also provided a background in the process of making a Start-Up company. It offered them opportunity to "get out of the building" even with Covid 19 restrictions and see the challenges of determining the initial stages of a successful Start-Up.

Conclusion - regulatory requirements for bringing a product to market:

The students generated a team, with a shared Google drive, that divided up the investigation into the regulatory process of certifying a new chemical or mix of chemicals as "Organic" by the USDA.

They are working on the petition and review process that is published by the USDA. Weekly Zoom meetings consult with Dr. Griffing on their progress.

This is an ongoing process and the students may participate in this process as interns in the company Griffing Biologics LLC over the summer or next fall semester.