

Funded Application: Example #2

Advice from the student:

My top 5 -

1. **READ** the proposal requirements and understand **WHY** they are requirements - It's a DUH statement but little nuances can amount to missing application chunks
2. **Write to "Joe the Plumber"** - Even though your audience is going to be "Joe the Doctor," you need to use short and concise language so more time is spent judging the merit of the project versus decryption.
3. **Pitch the idea to your friends/colleagues/significant other/insignificant other** - if you can convey the importance of the project to people not in the field, chances are you have something of significance
4. **BE INTERESTED** - People can sense smiles over the phone; people can also sense enthusiasm through reading. Why are you **ACTUALLY** doing your project? If you're not convinced yourself, neither will your reviewers.
5. **Ready, Fire!, Aim** - This is one I took from an article from Michael Masterson, a very successful copywriter. **GET GOING.** Don't be afraid if your first draft isn't perfect. We fear getting questions wrong on tests, not having second chances, and letting opportunities slip by. Understand that you GIVE yourself the opportunity to edit and re-edit. Get that first draft done. Even if it's horrible, you now have something to edit. Trust me, editing is easier than writing.

BONUS: Format the application so all the key points are clear can be picked out from a glance - **first impressions do matter**

John Luo

johnnyluo@gmail.com

The text is organized by bolded headings that correspond with the information requested in the application form for that particular funding year (check your year's form for the appropriate headings). This makes the proposal very easy to follow.

Note that the layout to the application is very clear and readable.

From Across the Table: A Guide for Academic Entrepreneurs

Submitted by: John Z. Luo, MD Class of 2013

Supervising Mentor: Selim Suner, MD

Dedicated to Prof. Michael Lysaght

Cross Disciplinary Content: Translational research is the pipeline for novel therapeutic treatments. Many new technologies such as medical devices, pharmaceuticals, or biotechnology will come out of the labs of academic researchers. Unfortunately, there exists a gap in knowledge in most aspiring academic entrepreneurs as to how best to bring their idea to market. In other words, many academic entrepreneurs do not have the knowledge or industry experience to turn their idea into a product. The goal of the proposed project is to bridge the knowledge gap by creating a guide for aspiring academic entrepreneurs. The purpose of this scholarly endeavor is to create an effective framework to bring ideas to market and into the clinical arena. The scholarly work culminating in a book will include a collection of insights from inventors, scientists, venture capitalists, intellectual property attorneys, experienced entrepreneurs, and technology transfer officers in the biomedical field. In doing so, this project will encompass the broad academic discipline of translational research as well as the commercial discipline of venture creation.

Here the student helpfully includes the number of total weeks spent on the project (rather than making the reviewer count the weeks to see if they equal the required number).

In-Depth Summer Experience

Beginning and end dates of work: June 7 – Aug 13 (10 weeks)

End-of-Summer Goal: The end goal of the summer is to acquire a full collection of material required for the book. More specifically, tangible products will include:

1. A full list of venture capitalists, entrepreneurs, technology transfer officers, and patent attorneys in the biomedical field who will contribute their input
2. Organize detailed notes from contributor interviews to create chapter outlines encompassing the five broad themes of the book:
 - i. Protecting your discovery/invention
 - ii. Identifying milestones for commercialization
 - iii. Building an effective team
 - iv. Attracting external funding
 - v. Identify potential setbacks and hedging your risk

This information will serve as the brain-map for the book, which will be written throughout the course of the scholarly concentration.

In parallel, another task of this scholarly project is the application of acquired knowledge into practice. Using the available network of experienced entrepreneurs and venture capital, consulting services will be given to researchers and a startup company (Corum Medical) who aim to commercialize their venture. These services will assess the feasibility of the invention as well as guide researchers in their conversations with potential collaborators and funding sources. Experiences from the consulting arm of the project will be integrated into the book chapters as a case study.

Description of proposed method (how will I be spending the time)

The four primary tasks scheduled for the summer project are:

1. Conducting interviews
2. Transcribing interviews
3. Establishing chapter outlines
4. Consulting for Corum Medical

Conducting Interviews

Individuals contributing to this project will fall under four categories. Venture capitalists, experienced entrepreneurs, intellectual property attorneys, and technology transfer offices. The purpose of the selection is to give a circumspective view of venture creation and startup companies from almost every aspect of the enterprise. Below are preliminary questions, which will be asked from each group as well as a tentative list of the individuals who will be interviewed. The interviewees were chosen based upon their experiences in establishing biomedical companies, providing funding, and/or their involvement in intellectual property. Past relationships have been established through previous fields of work and the ability to secure interviews should not be of concern. The question list and interviewees will be modified and expanded throughout the process:

Venture Capitalist

Richard Horan, MBA. Senior Managing Director, Slater Technology Fund

Thorne Sparkman, MBA. Managing Director, Slater Technology Fund

Mikhail Shaprio, Ph.D. Senior Associate, Third Rock Ventures

Teo Dagi MD, MBA, MPH. Managing Partner, HLM Ventures

- Where does venture capital fit into a biomedical venture?
- What would you like to see from an entrepreneur when they approach you for funding?
- How would you describe the dialog between your firm and the entrepreneur? How many transactions does it take?
- What does a successful team look like to you?
- What are the common mistakes biomedical entrepreneurs make?
- Aside from venture capital, what are the common places entrepreneurs can find funding? At what stage?
- What do you believe that the most valuable advice a biomedical entrepreneur can receive?

Any mention of an interview or survey should be accompanied by at least a draft of the proposed questions (provided here) or survey tool. Survey development in particular can be very tricky and time-consuming. Get started on it early!

Entrepreneur**Jason Harry, Ph.D CEO, Lucidux Inc.****Robert Rabiner, CEO, Illuminox Inc.****Robert Johnson, MD, PhD, CEO Kosan Inc. (Acquired by Bristol-Myers Squibb)**

- Can you tell me the difference between an entrepreneur and a researcher? Are they usually the same person?
- What were some of the roadblocks you encountered when launching/operating your company?
- What was it like when you were raising funding?
- When running the company, what was the happiest day? What was the most miserable day?
- What mindset is required of a biomedical entrepreneur?
- What is the transition like from a researcher to an entrepreneur? Is it for everyone?
- What would be your most valuable piece of advice you would give to someone starting out?

Technology Transfer Officer**Brown University Technology Transfer Office**

- What is the thought process you go through when a researcher presents you with a new discovery?
- From what you have seen, what is the technology transfer process like for a researcher who wants to start his/her own company?
- How does the institution usually play into the new venture?
- What support is given to the researcher after the technology is transferred?
- Can the institution release intellectual property to the researcher? Under what circumstances can this occur?
- What advice do you have for researchers who would like to patent their technology and establish a company?

Intellectual Property Attorney**Christopher Graham JD, Partner, Edwards, Angell, Palmer and Dodge LLP**

- What are the first steps a researcher can do to protect their assets?
- What materials should the researcher prepare in order to speak to a patent attorney?
- How long does the process take?
- What are the primary costs involved in the patenting process?
- What are some tips you can give researchers to prevent future roadblocks when protecting their intellectual property?

Organize interviews

Detailed notes from the interviews will serve as the basis for the outline of the chapters.

Establishing outlines

The most insightful aspects of each interview will be sorted and incorporated into the different themes of the book. It is expected that the content will be segmented based on expertise (e.g. Intellectual property attorneys will primarily comprise the “Protecting your assets” section).

Consult for researchers interested in transitioning their discovery to market

In parallel with the interviews, as a pilot, consulting services will be provided for a startup company, Corum Medical, to assess the feasibility of the technology and product development strategies. Experiences from working with Corum Medical and other startups will be incorporated as examples in the final version of the book.

Corum Medical

Corum Medical focuses on developing a non-invasive method to instantly measure hemoglobin using an optic sensor to detect blood vessels in the eye lids. The company was founded by Dr. Gregory Jay, Dr. Selim Suner and team in 2006.

Actively working with the team under the guidance of Dr. Jay and Dr. Suner, evaluation of milestones to commercialization as well as funding will be performed. Projections of commercialization timelines, funding requirements, and technological barriers will be the primary focus. This will allow the founders and current investors to assess the health of the company and determine the best path to take.

How will the project contribute to the general knowledge of the topic/Community?

Physicians are not just another gear in the large infrastructure of the healthcare system. Physicians contribute to the formation and evolution of the way we provide care. One of the primary tasks of this process is to identify inefficiencies and create solutions which will improve care. In the world of both academic research and venture capital, lines often blur between a dedicated physician and an aspiring entrepreneur. Unfortunately for every success, there are thousands of failures. This project will create a product which will hopefully reduce the number of unnecessary failures which academic entrepreneurs often face by providing a framework for success. The guide for translational research will equip academic entrepreneurs with the tools they need in order to develop their technology, attract funding, and create feasible expectations. More specifically, this guide will help train the entrepreneur to:

1. Evaluate the feasibility of their idea
2. Create a concise plan to develop their product
3. Attract funding from available sources (investors, grants, venture capital)
4. Understand the most common pitfalls made by their peers
5. Identify not-so-obvious roadblocks in the near future

Description of problems

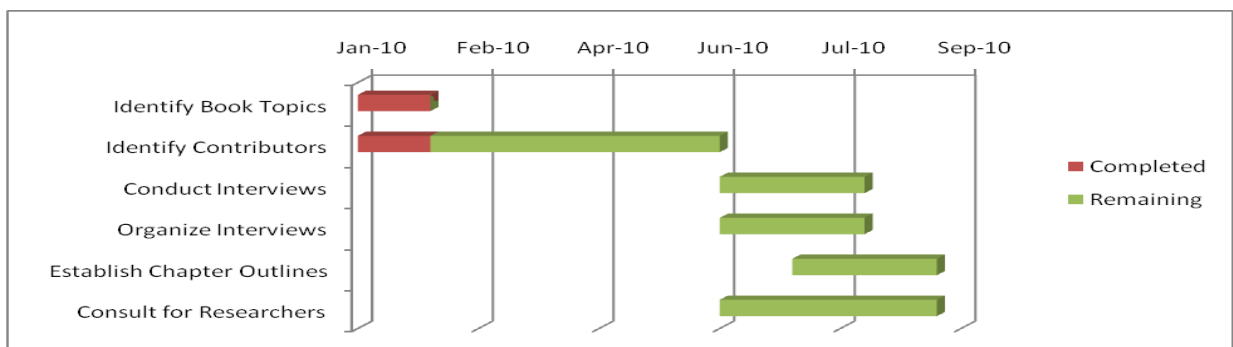
The availability of potential contributors is the primary concern regarding this project. Often times, it may be difficult for higher profile entrepreneurs and venture capitalists to schedule a time for an interview. However, given the flexibility of the timeframe throughout the summer as well as existing relationships with contributors, this issue should be minimized. Should this be a concern, a secondary list of contributors will be chosen for their respective sections.

How will this fit into my personal development and educational goals?

I believe that research is an integral part of providing effective patient care. Although it is important to efficiently utilize the tools available to physicians to provide the best care, it is equally important to create tools which address the inefficiencies. Having been an entrepreneur as well as a venture capitalist, I believe that the process of creating this book will allow me to better communicate with those who will be making new discoveries as well as individuals who can create new products out of them. Gaining additional perspectives from previous mentors as well as colleagues through the proposed interviews will offer me opportunity to view translational research from the perspective of a medical student. The ability to observe issues from several different vantage points gives the ability to choose the best approach to communicate the ideas and concepts presented in the book for the intended audience. I also believe that my previous experiences in helping write interview-based books such as the real estate text book: "Land Use and the Built Environment" with Professor Josef Mittlemann, comprised of interviews from some of the top executives in the field will serve as a guide for writing this book. As a future physician, increasing my ability to leap across disciplines to create solutions where others see problems can contribute greatly to not only my personal interest of venture creation but also expedite the evolution of technologies in the medical field.

Timeline of Activities
Summer 2010 (dates in month-year format)

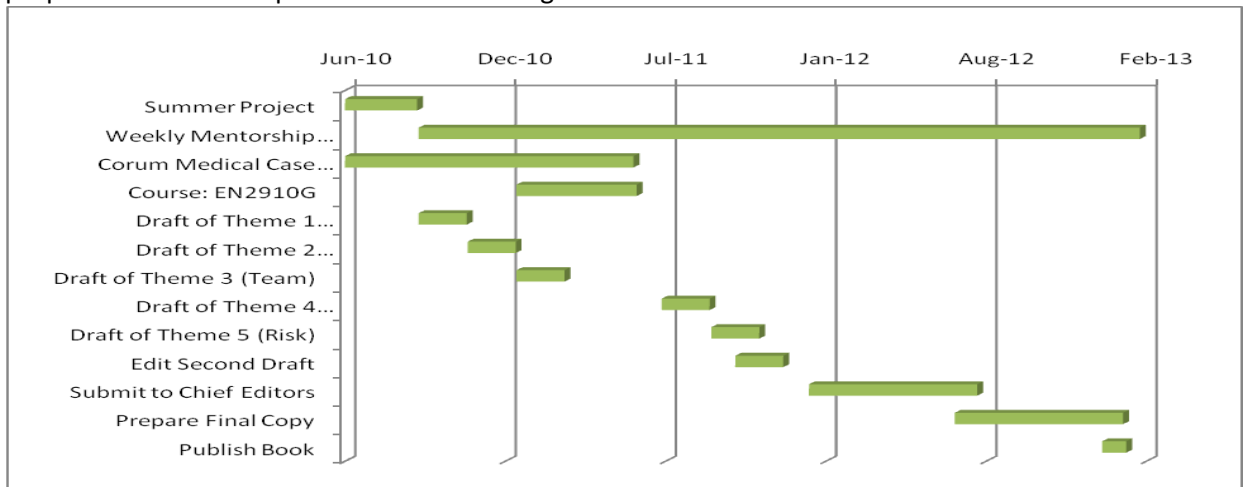
Well-developed
 timeline(s).



Duration of Scholarly Concentration (dates in month-year format)

Throughout the duration of the scholarly concentration, weekly meetings with Dr. Suner and Dr. Jay (mentorship) will be held to assess the progress of the project. In addition, the course ENGN2910G: Topics in Translational Research and Technologies will be taken as a supplement to the scholarly concentration. ENGN2910 is a seminar which will focus on the process of translational research from the bench to the bedside with topics such as value creation, IRB, HIPAA, and FDA approval. The course is taught by Dr. Jay and will include presentations by clinicians, medical researchers, engineers, and entrepreneurs.

Many of the themes explored in the final book will be discussed in the class. Corum Medical will also be analyzed as a longitudinal case study throughout year two. The purpose of which is to provide continued insight into venture creation.



Final Scholarly Product

A publishable book on translational research for academic entrepreneurs looking to bring their idea to market: The book will consist of the 5 major themes reiterated throughout this proposal: intellectual property, milestone development, team requirements, financing, and potential pitfalls. Input and advice from experienced venture capitalists, entrepreneurs, investors, intellectual property attorneys, and technology transfer officers will be included. The perspectives will give the entrepreneur a glimpse into the minds of the individuals who will be integral throughout the development of their ventures. This hopefully will break down the communication barriers that often exist between researchers and their collaborators. The book will be dedicated to Professor Michael Lysaght, who was the founder of Brown University's Center for Biomedical Engineering. The experience which he brought from the biomedical industry to Brown University enlightened a new generation of researcher-entrepreneurs. This has been an inspiration for the proposed book.