Research to the Real World

HOW YOUR PROJECT CAN GROW YOUR ENTREPRENEURIAL SKILLS

UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE
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Contents

Introduction

What will you do when you finish your graduate degree? Many students struggle with this question as they begin to wrap up their studies. For some, it may seem like a career in academia is the next logical step once they graduate. But what if academia isn't the only path forward?

A 2012 study by the Alberta School of Business showed that University of Alberta alumni created more than 70,000 new organizations and more than 1.5 million jobs.[1] These span a huge variety of growing sectors such as construction, agriculture, forestry, finance, insurance, and real estate. One-third of those organizations have social, cultural, or environmental missions in their business models. Most of these organizations were founded by alumni after graduation.

Your graduate research project could build the skills, focus, and motivation that you will use throughout your career, whether within an existing organization or a completely new one. The purpose of this workbook is to provide some guiding questions to help you develop your ideas and teach you how to think more entrepreneurially.

What is Innovation?

By doing a thesis, dissertation, or capstone project, you are undertaking something innovative. A simple definition of **innovation** is doing something new or better than what has been done before. Innovation comes in many forms, including:

- **Products** (such as new artwork, software, inventions, or drugs)
- **Processes** (such as new strategies or protocols)
- **Practices** (such as new collaborations, ways to interact with the community, or business models)
- **Policies** (such as new organizational rules or regulations)

These innovations may be tangible or intangible; science-, social science-, or humanities-based; self-evident or subtle. They don't need to be science-based: innovations can focus on new social movements or open-source collaborations, too.

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[1] Briggs, A., Jennings, J. 2013. *Uplifting the Whole People: The Impact of University of Alberta Alumni through Innovation and Entrepreneurship.* Edmonton: University of Alberta.

Regardless of what kind of ideas you have, developing them is a major component of your graduate work, particularly in your thesis or capstone project. By taking your ideas one step further, they can be the seeds of new entrepreneurial plans, or even the beginning of your own startup!

There are three important tools that can help turn your innovative idea into something more entrepreneurial: an entrepreneurial mindset, a value proposition, and the ability to adapt to various markets or opportunities.

Developing an Entrepreneurial Mindset

You don't need to have a business degree in order to be an entrepreneur—you just need to *think* like an entrepreneur. Someone with an entrepreneurial mindset frequently and quickly envisions the possibilities for innovating with a product, process, or idea.[2] People with entrepreneurial mindsets know how to sort through options based on a well-honed sense of their viability or potential. They have a willingness to commit to a decision and be accountable for those choices. And most importantly, an entrepreneurial mindset means being flexible and resilient along the way.

You may notice that these same qualities are also what helps you conduct research. So, as you continue building your research skills, you are also developing an entrepreneurial mindset!

NOTE: ON INTRAPRENEURSHIP

If "traditional" entrepreneurship isn't really your speed, perhaps consider how you might bring your creativity, adaptability, and innovative mindset to help an existing organization instead.

Intrapreneurship involves behaving like an entrepreneur but within a large organization. Like entrepreneurs, intrapreneurs are also self-motivated, creative, and always thinking of new solutions. This mindset helps intrapreneurs be leaders and champions for change within their organizations. Organizations that give space for intrapreneurs to innovate tend to be more successful at adapting to changing markets and environments. The Post-It note, the Facebook "Like," the Sony PlayStation, and numerous films from DreamWorks Studios are all examples of successes that came out of intrapreneurial organizations.

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2   McGrath, R.G., MacMillan, I.C. 2000. *The entrepreneurial mindset: Strategies for continuously creating opportunity in an age of uncertainty (Vol. 284)*. Harvard Business Press.

Don't know if you have such a mindset already? Online tools like BDC's Entrepreneurial Potential Self-Assessment may help you see how you embody these characteristics.

Even if you don't feel that entrepreneurship is your style, learning to think like an entrepreneur can help you see your research project from a new perspective. The good news is that entrepreneurial thinking, like all skills, can be taught and practised. Working on innovative ideas with others, learning from other entrepreneurs, and doing some of the exercises below are all steps that you can take towards thinking more like an entrepreneur.

Developing an Entrepreneurial Value Proposition

Every good venture has a **unique value proposition** to offer. This is a clear and compelling message that tells customers why they should pay attention to your idea.

Especially in the research community, not everyone easily identifies with the concept of a "customer." Instead of "customers," you could think about potential **end-users** of your idea. When you think about who would be interested in your idea, what could be impacted by your work, and where your idea could be applied, you are considering the needs of your end-users.

What sets your venture apart from those of your competitors or other researchers? How does your project complement the work of others?

To identify a potential value proposition, start by identifying the novel aspects of your project. This is the "unique" part of the unique value proposition—almost every research project has some degree of novelty.

IDENTIFYING A PROBLEM

The key to any good entrepreneurial venture is identifying an important **problem** that needs to be solved. Many project proposals will likely describe the significance of this problem in their introduction or abstract. Why are you interested in exploring this topic? Why should other people care?

If you are having trouble identifying a problem to solve, consider meeting with your supervisor. If the project is funded by a grant or some other source, was there something in that proposal

that you could use as a starting point? If you originally proposed a project to your supervisor based on their research interests, what points were raised in the discussion that demonstrated that your idea was worth pursuing?

Impact statements make for a good starting point for this exercise. To think more like an entrepreneur, consider the end-users who could possibly benefit from your idea and what kind of tasks they need to complete.

- What is hindering their ability to do the task effectively?
- How are they doing it right now?
- Is their current solution working, or is it causing different problems?

The word "task" is a very general term, but there is always some important goal the end-user needs to accomplish. The task could be as complex as preventing the spread of an invasive species, or as simple as someone needing to travel across town to a friend's party.

It is better to target a smaller, more specific problem. Instead of focusing on every possible end-user, think about the main **user segments** (or **personas**) you want to target. These are subsets of customers with similar demographic, geographic, or behavioural patterns that you can target with a product, policy, process, or best practice.

Sometimes, when you dig further into a problem, you realize that more than one user segment could benefit from a solution. A good way to get insight into how people do particular tasks is to conduct formal or informal **user interviews** and learn more about the groups you have identified.

NOTE: ON SQUARE PEGS AND ROUND HOLES

"When all you have is a hammer, everything starts looking like a nail."

Students will often discover something interesting during their research, put incredible amounts of time and energy into developing it, and then try to force a problem to fit around it. While this strategy sometimes works, it is more effective to first observe how your target users do their work normally. This helps test and validate the assumptions you have made about a particular problem, shows you how your idea can fit into existing workflows, and gives you more time early on to decide how to focus your resources.

Otherwise, you may find that you committed too many resources towards a problem nobody has.

Exercise 1: Identifying a compelling problem

List a few potential users or groups of people that you want to help. Who or what might benefit from your expertise?

1.

2.

3.

4.

5.

Pick one of those groups for now. What is a major, important task that they are trying to accomplish? (Hint: Try reaching out to some of them and asking them directly!)

What is the biggest problem or challenge that is hindering their ability to do that task effectively?

How are they accomplishing the task right now? What kind of workarounds or solutions currently exist to solve these problems and challenges?

Are these solutions "good enough" for the user? Does it cause any new problems?

What is your proposed solution or idea?

How can your idea help address these problems? If the current solution is "good enough," what other tasks could you consider instead?

FINDING VALUE

An impact statement also helps identify the **value** that your idea may bring to the user segments facing the problems you identified. Why would potential customers care about your research? How does your idea solve the problems you identified?

By answering these questions, you can create a compelling unique value proposition. Note that this will likely not be the only value proposition you offer, nor will it be the same one you have over time. Like drafts of an essay, you will need to make many **iterations** of your value proposition as you gather more information about your end-users and their problems. The more iterations you have, the more you will discover a real need that you can address.

> **Example 1**
> *On average, every year, two out of ten people around the world get seriously sick from consuming contaminated water. The lack of real-time, data-based decision-making about the safety of drinking water is a major cause, as current testing procedures require sophisticated laboratories and results come in two to five days later. To address this, Roshan Water Solutions is developing VeloCens™, a rapid and portable testing unit for* E. coli *and total coliform that determines the safety of water within an hour.*[3]

> **Example 2**
> *Working professionals looking to furnish their houses get overwhelmed with so many options in the furniture market. They do not have a lot of free time available and can end up with buyer's remorse due to a lack of experience with interior design. We are developing a mobile and web application that will help people organize their research and visualize everything properly. This will increase consumer confidence, which in turn will increase the overall satisfaction of a consumer's furniture purchases.*[4]

> **Example 3**
> *The world population is growing at an alarming rate and poses a challenge for sustainable food security that minimizes impact on the environment. Edible insects— specifically crickets—offer a fast-growing, highly concentrated protein source with a low environmental footprint. At Camola Sustainable Foods. we are introducing edible insects to the Canadian market in an innovative way: not only by manufacturing cricket powder but also showing how it can be used in tasty products and recipes.*[5]

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[3] Roshan Water Solutions (Parmiss Mojir Shaibani, personal communication)

[4] University of Alberta, Faculty of Arts and Design (Chandni Luhadiya, personal communication)

[5] Camola Sustainable Foods (Claudio La Rocca, personal communication)

Exercise 2: Identifying value

Using what you brainstormed in Exercise 1, try writing out your value proposition. Try to keep this between three to five sentences long. Try to minimize jargon or technical vocabulary and explain your idea in simple terms.

Share the idea! Find some of the potential end-users you identified in Exercise 1 and discuss this idea with them. Write down feedback from three of them. Is your story resonating with others?

1.

2.

3.

Using this feedback, write a new version of your value proposition. Keep exploring the idea and gathering more feedback until you have a compelling and refined value proposition.

Exploring Business Model Opportunities

Another way to develop your entrepreneurial thinking skills is to look at market or non-market opportunities for your idea. Non-market opportunities include social or political endeavours, which typically involve non-profit entities or charities. Market opportunities include innovations that could be monetized, sold for profit, or licensed to a third party.

Can your idea be turned into a for-profit or non-profit organization? Are there potential partnerships you can form with government bodies or private corporations? Can it be licensed out to a larger organization for royalties? Ask yourself if customers would be willing to pay you to solve this problem for them.

NOTE: ON SOCIAL INNOVATION AND CORPORATE SOCIAL RESPONSIBILITY

Academics are sometimes hesitant to pursue commercialization of their research. A common sentiment is that the purity of academic pursuit for the betterment of society can be sullied by commercial pursuit.

Entrepreneurship and social responsibility are not mutually exclusive concepts. Every year, more and more companies are adopting socially, culturally, or environmentally responsible practices. In 2012, around one-third of the organizations formed by University of Alberta alumni had social, cultural, or environmental missions.[1] This included non-profits and for-profit organizations alike.

Social innovation refers to ideas that have a positive social impact at the forefront. Stanford University defines social innovation as *"the process of developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social progress."* [2] This can be accomplished through non-profit or government means, not just through entrepreneurship. Can your ideas address a major social need?

Even if the product or service doesn't inherently have a social innovation component, the business model itself could have *corporate social responsibility* aspects. For example, a portion of the revenue can go towards a charity or cause, or you can use sustainable methods and materials in your products and services.

Perhaps your idea can help another company be better corporate citizens. Can you help an existing organization be more socially responsible in its practices or policies?

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[1]   Briggs, A., Jennings, J., 2013
[2]   Stanford Graduate School of Business, Centre for Social Innovation. 2020. *Defining Social Innovation.* https://www.gsb.stanford.edu/faculty-research/centers-initiatives/csi/defining-social-innovation.

Consider how you might generate a **revenue stream** to support this idea. Without revenue or income, an organization will not be able to sustain its operations or pay its staff. This is true even for non-profit agencies, which need funding to conduct their activities. Charities, for example, rely on revenue, grants, or donations to continue their operations. Understanding the needs of your end-users and developing a solid value statement are also critical for successful grant applications.

Exercise 3: Exploring Opportunities

Write down a potential for-profit opportunity for the idea that you have explored so far in Exercises 1 and 2.

Write down a potential non-profit opportunity for the same idea.

Write down one to three ways that you or a potential organization could generate revenue using the idea.

1.

2.

3.

What's Next?

These exercises are designed to grow your business acumen and help you consider whether an entrepreneurial or intrapreneurial path suits you better than an academic one. They are, of course, not mutually exclusive—many academics become entrepreneurs and many organizations seek graduate students who have an entrepreneurial mindset.

This is just the first step in helping you think about your research beyond academia. There are plenty of resources out there to help you brainstorm and plan your ideas out even more.

Tools such as the Lean Canvas and Business Model Canvas are excellent exercises for you to capture and visualize every component of your business. These tools can also help you identify gaps in your business plan. Both the Lean Canvas and Business Model Canvas can be found through free online resources such as Canvanizer. (https://canvanizer.com)

If you are interested in learning more about the different ways to commercialize your research into a startup company or a licensed partnership, the University of Alberta also offers the *Innovator's Handbook: A Guide for Graduate Students* that discusses those concepts in-depth. It covers some of the nuances of the University of Alberta's technology transfer policies and provides a list of community resources, events, and support groups that help entrepreneurs.

As a student, this is an excellent opportunity for you to reach out to the community early and ask for help and advice. This helps build your network and develop important skills that will be necessary in your career. Start early and take advantage of the events, workshops, and meetings that the innovation community has to offer.

Is there anything that you would like to learn more about? Fill out our survey on the Faculty of Graduate Studies and Research portal! This will help us create new content that is relevant to the needs of our students.

Who knows what you'll come up with next?

Acknowledgements

The Faculty of Graduate Studies and Research (FGSR) would like to thank and acknowledge the following individuals for their help and guidance in developing this resource:

- Patrick Wu, who developed, wrote, and designed this workbook with guidance, input, and support from campus and off-campus partners
- Dr. Anthony Briggs, Dr. P. Devereaux Jennings, and Dr. Leanne Hedberg, Alberta School of Business
- Dr. Shoma Sinha, Alberta Economic Development, Trade, and Tourism
- Roshan Water Solutions
- Camola Sustainable Foods
- All of the current and alumni graduate students who offered feedback and examples throughout this workbook

Photos courtesy of: University of Alberta, Jordan Hon, Jeanette Sesay, and Richard Siemens