

Aalto Global Impact

INTEGRATING ENTREPRENEURSHIP INTO
AGRICULTURE CURRICULA: A FOCUS ON FIT

PART I
TEACHING ENTREPRENEURSHIP CONTENT

Patrick Shulist, Aalto University

2024





Ulkoministeriö
Utrikesministeriet
Ministry for Foreign
Affairs of Finland



TABLE OF CONTENTS

1	PURPOSE AND POSITION OF THIS MANUAL_____	5
2	INTRODUCTION_____	6
	2.1 Why entrepreneurship, and why Bioscience programs?_____	6
	2.2 Overview of this manual_____	7
	2.3 This part of the manual: A focus on entrepreneurship content_____	7
3	AWARENESS: UNDERSTANDING THE DIVERSITY OF ENTREPRENEURSHIP_____	9
	3.1 Different types of entrepreneurship_____	10
	3.1.1 Entrepreneurship by individuals and teams	
	3.1.2 Entrepreneurship within companies	
	3.2 Comparing Characteristics across different types of entrepreneurship_____	17
	3.2.1 Business ideas at the core	
	3.2.2 Entrepreneurship as a process	
	3.2.3 Varying levels of risk and uncertainty	
	3.2.4 Levels of creativity and innovation	
	3.2.5 Resource mobilization	
	3.2.6 Forming and leveraging social relationships	
	3.2.7 Goals	
4	SOCIAL-PSYCHOLOGICAL PREPARATION: BUILDING AN ENTREPRENEURIAL MINDSET_____	21
	4.1 Seeing oneself as an entrepreneur; developing entrepreneurial intentions_____	22
	4.1.1 The theory of planned behaviour	
	4.1.2 Theory of planned behaviour and entrepreneurship	
	4.1.3 Developing an internal locus of control	
	4.1.4 Developing the motivation to be an entrepreneur	
	4.1.5 Developing self-efficacy	
	4.2 Generating business ideas_____	28
	4.2.1 Generating ideas along the value chain	
	4.2.2 Generating business ideas from challenges	
	4.2.3 Generating business ideas by addressing climate change	
	4.2.4 Generating business ideas using knowledge learned in class	
	4.2.5 Generating business ideas by thinking of novel uses of existing crops	
	4.2.6 Generating business ideas out of waste products	
5	LIST OF POTENTIAL BUSINESS IDEAS, THEIR VALUE PROPOSITION, TARGET CUSTOMER SEGMENT, AND INITIAL EVALUATION OF THE IDEA'S VIABILITY_____	39

6	SPECIALIZED ENTREPRENEURIAL SKILLS: EVALUATING AND DEVELOPING BUSINESS IDEAS_____	43
6.1	Initial evaluation and screening_____	44
6.1.1	Screening questions	
6.1.1.1	<i>What would it take to develop an idea into a business?</i>	
6.1.1.2	<i>What do you currently have? And, what can you get?</i>	
6.1.1.3	<i>Fit between what is needed, and what you have or can get</i>	
6.1.1.4	<i>Additional questions</i>	
6.1.1.5	<i>Exercise and assignment questions</i>	
6.1.2	What is the value proposition, and who is the customer?	
6.1.2.1	<i>Value proposition</i>	
6.1.2.2	<i>Customer segments</i>	
6.1.2.3	<i>Exercise and assignment questions</i>	
6.2	Initial development: Business model canvas_____	53
6.2.1	Components	
6.2.1.1	<i>Key Activities</i>	
6.2.1.2	<i>Key Resources</i>	
6.2.1.3	<i>Cost Structure</i>	
6.2.1.4	<i>Revenue Streams</i>	
6.2.1.5	<i>Key Partnerships</i>	
6.2.1.6	<i>Channels</i>	
6.2.1.7	<i>Customer Relationships</i>	
6.2.2	Teaching the BMC: A focus on alignment	
6.2.3	Example business model canvas: Selling staple grains on the local market	
6.2.4	Example business model canvas: Creating an artisanal coffee brand	
6.2.5	Exercise and assignment questions	
6.3	Other development approaches: Lean startup, business plans and financial models__	63
7	SPECIALIZED ENTREPRENEURIAL SKILLS: STARTING A BUSINESS_____	65
8	SPECIALIZED ENTREPRENEURIAL SKILLS: GROWING A BUSINESS_____	67
8.1	Approaches to growth_____	67
8.2	Finding the proper approach to growth_____	69
9	CREATING CONNECTIONS: ENTREPRENEURSHIP WITHIN AN ECOSYSTEM_____	70
10	GENERAL BUSINESS SKILLS: E.G., MARKETING AND FINANCE_____	71
11	REFERENCES_____	72
	LIST OF FIGURES_____	74
	LIST OF TEACHING TOOLS_____	75
	LIST OF INTENDED LEARNING OBJECTIVES_____	75



1 PURPOSE AND POSITION OF THIS MANUAL

This manual was written in the context of international collaboration between Finnish and East African Higher Education Institutions and is meant to support the entrepreneurship pillar of the PBL BioAfrica project. It was written by me, Dr. Patrick Shulist, an Assistant Professor in the Entrepreneurship Unit at Aalto University, based on extensive workshops and conversations with partners at Mulungushi University, Egerton University, the University of Nairobi, South Eastern Kenya University, and the University of Zambia. Beyond this engagement specific to the PBL BioAfrica project, these modules build upon Aalto University's history of higher education cooperation with institutions in the Global South, facilitated by Aalto Global Impact.

This manual is developed to serve as a resource for faculty at the project's partner universities in Kenya and Zambia but are equally relevant for other higher education institutions in the region and beyond. The focus is on entrepreneurship within the agriculture and bioeconomy sectors in African contexts, with possibilities to adapt to other themes. The materials are aimed at faculty for whom entrepreneurship is a relatively new topic; for example, faculty whose core area of expertise is in agriculture. They serve both as an introduction to the topic, and as a planning tool to support the integration of entrepreneurship into higher education courses and curricula.

Part 1 of this manual introduces core entrepreneurship concepts and presents exercises to use in class. Part 2 steps back and explores how entrepreneurship may be integrated into existing programs. In this way, the manual is designed to speak to entrepreneurship across different levels: within a single class session, within a class, and at the curriculum level. Integration across these levels is vital to successfully equipping students with important skills and can be done without seriously disrupting existing agriculture programs.

I wish you the best of luck in integrating this important topic. And please do not hesitate to reach out to me with any questions. My hope is that the content of this manual will continue to evolve through future collaboration with those working hard to integrate entrepreneurship into their technical curricula.

Helsinki, Finland
October 25, 2024



2 INTRODUCTION

2.1 WHY ENTREPRENEURSHIP, AND WHY BIOSCIENCE PROGRAMS?

This manual has three core premises: 1) Entrepreneurship is important for students to understand, 2) Entrepreneurship can be integrated into your programs without disrupting the core curriculum, and 3) Entrepreneurship should be integrated in a way that makes sense for you; there is no single ‘proper’ way to integrate entrepreneurship into a curriculum.

Starting with the first point, we all know that university graduates have challenges finding work after graduation, just as we know that there are serious country-wide unemployment issues. Moreover, entrepreneurship – whether within an existing company, or by starting a new firm – brings new ideas enter the marketplace. Companies and countries alike need these new ideas if they are to adapt to a rapidly changing world and avoid economic stagnation. Furthermore, entrepreneurship can address sustainability issues. Students should be empowered to reduce the climate impact of agriculture and to adapt to changing climate conditions. They should also work to empower marginalized communities, and to develop businesses that enhance food security and health outcomes. Entrepreneurship is a route to all these objectives.

Second, entrepreneurship can be integrated in a non-disruptive manner. Often, faculty resist entrepreneurship because they see it as competing with the core topic of the program; more entrepreneurship means less forestry or less agriculture. However, I would argue that entrepreneurship allows students to put their hard-earned scientific knowledge into action. Moreover, students can get exposure to entrepreneurship without eliminating existing courses. For instance, entrepreneurship can be integrated into existing courses with techniques as simple as short 15-minute cases, exercises, and assignment questions that help build an entrepreneurial mindset. Through small, repeated, exposures across different courses, students can see both the relevance of entrepreneurship, and its connections to their core program’s subject matter.

Of course, some programs might wish for a more in-depth integration of entrepreneurship, such as having standalone courses. This is also entirely viable, and brings us to our third point: there is no single ‘proper’ way to integrate entrepreneurship. Instead, when, where, and how entrepreneurship is integrated into a program depends on your unique circumstances.

2.2 OVERVIEW OF THIS MANUAL

This manual is structured in two main parts: content, and integration. In the first part, I discuss a variety of different entrepreneurship content to which we can introduce students. Here, I briefly introduce some of the relevant literature, but the focus is on giving practical exercises and tools that can be directly integrated into your teaching. To this end, there is an extensive list of teaching tools, as well as sample intended learning outcomes. Overall, the content covers everything from how to understand the diversity of entrepreneurship and how to develop an entrepreneurial mindset, all the way to growing a business and creating links to local entrepreneurial ecosystems.

The second part, which is a separate document, discusses how to actually integrate this content into your teaching. In doing this, my overarching pedagogical approach is constructive alignment (Biggs & Tang, 2011). At the program level, this means that content decisions are not made in isolation. Rather, content decisions must align with other factors such as your preferences for learning outcomes, on faculty expertise, on teaching space available, on resources, and on the local context. By balancing and aligning these factors, we can adapt the current program-level intended learning outcomes. These learning outcomes are then filtered down into specific courses. Here, we then align course-level learning outcomes, teaching activities, and assignments to ensure that we teach students what should be taught, and assess their knowledge. Overall, effective alignment not only prepares students to be job creators rather than job seekers but also equips them with the tools to contribute effectively to their country's economic development and sustainability in agriculture.

2.3 THIS PART OF THE MANUAL: A FOCUS ON ENTREPRENEURSHIP CONTENT

Because entrepreneurship is such a vast phenomenon, we have to choose the depth at which we want to teach it to students. This can range from simply giving an introduction all the way to helping students develop business ideas and start businesses. In choosing what to teach, I suggest prioritizing topics – on which I expand below – in the following order:

1. Awareness: Understanding the diversity of entrepreneurship
2. Social-psychological preparation: Building an entrepreneurial mindset
3. Specialized entrepreneurial skills
 - a. Evaluating and developing business ideas
 - b. Starting a business
 - c. Growing a business
4. Creating connections: Entrepreneurship within an ecosystem
5. General business skills

Each aspect of entrepreneurship builds on the previous one and can be seen as steps along a continuum to deeper entrepreneurial skills {Liñán, 2004 #6301}. Moreover, as we go progressively through this list, more curriculum time is needed to adequately cover a topic. For instance, getting students familiar with different approaches to entrepreneurship can be done in a few hours of class time 'borrowed' from other courses, while developing robust business skills takes multiple standalone courses. While it is of course useful to cover all these aspects, the first two are the most important, and can be done in a way that is minimally disruptive to current curricula. Furthermore, simply planting the seed of entrepreneurship in students' minds is extremely valuable, as we want them to at least consider this career option. If they are truly interested, they can figure out most of the rest.



3 AWARENESS: UNDERSTANDING THE DIVERSITY OF ENTREPRENEURSHIP

Intended Learning Outcomes 1: Diversity of entrepreneurship

1. Understand entrepreneurship as a process which has business ideas at its core.
2. Understand the role of entrepreneurship in job creation and economic development.
3. Recognize and describe different types of entrepreneurship, such as starting a small business, sustainable entrepreneurship, or working entrepreneurially inside a large organization.
4. Compare and contrast the characteristics of the different types of entrepreneurship.

Entrepreneurship is a broad phenomenon, and we want students to understand it as such. We want them to see many different ways of being an entrepreneur so they can hopefully find a way that works for themselves. Indeed, there is no single way to be an entrepreneur, and no single goal that an entrepreneur can have. Starting a billion-dollar high-tech business is entrepreneurial, just as is starting a small business selling electrical parts. Furthermore, we often talk about entrepreneurship within existing companies, using terms such as corporate entrepreneurship, intrapreneurship, and entrepreneurial teams. Moreover, entrepreneurship need not be about making money, but can be about accomplishing sustainability goals.

While this diversity can get confusing, thinking carefully about how to teach entrepreneurship to students can improve teaching outcomes. To this end, the following sections outline one teaching approach. We first start by giving students grounded examples of entrepreneurship (section 3.1). This helps them to understand the different approaches in a concrete manner. We then build off these examples to draw out the common characteristics in entrepreneurship (section 3.2).

3.1 DIFFERENT TYPES OF ENTREPRENEURSHIP

Talking about the diversity of entrepreneurship in the abstract can be difficult for students to grasp, especially if they lack a background in business. As such, I find it best to immediately start by giving them some grounded examples of entrepreneurship using the below vignettes. We can also ask questions of students to get them to start thinking about the different characteristics of entrepreneurship. These vignettes are best used when entrepreneurship is first introduced to students. Of course, it makes sense to emphasize the types of entrepreneurship that are most relevant to the student, namely small-scale businesses, or creating a job for oneself.

3.1.1 Entrepreneurship by individuals and teams

Teaching Tool 1: Vignette on small-scale engagement in the circular economy

Duration: 15 minutes when used in class

Intended learning outcome: Understanding one approach to entrepreneurship

Classes in which these exercises can be used: Course where entrepreneurship is being introduced

1

Vignette:

After graduating with an agriculture diploma, Chuma has been working in industry for the past three years. During this time, she has seen just how much bio waste is made from processing maize. This waste is usually discarded, leading to carbon emissions as they break down or are burnt. Chuma believes these waste products can be fashioned into briquettes that can be used for heating in colder regions of Kenya. By redirecting a waste product towards human use, Chuma hopes to reduce carbon emissions by substituting briquettes for other types of cooking and heating fuels. Chuma would be looking to start this business with one of her friends, and they would start with a small test batch just to gauge performance and to see if people are interested in buying the product. Starting small in this way will help them reduce the costs of potential failure. That food processors place little value on bio waste, and would thus be willing to sell it for cheap, further reduced start-up costs. Even though they are starting small, they will nonetheless have to organize logistics, purchase or rent a press for the briquettes, develop their branding, and form relationships with retailers and customers. All of this entails some risk, but Chuma thinks this is manageable.

Questions to ask students:

1. What are Chuma's goals?
 - o Doing something environmentally beneficial, and making a more interesting job.
2. Where in the entrepreneurial process is Chuma currently?
 - o Developing the idea, not yet started the business.
3. How innovative is Chuma's idea, and how risky is it?
 - o Somewhat innovative, as the idea is not widespread. Some risk.
4. What resources are important to Chuma?
 - o Agricultural waste products, briquette press, money, workspace.
5. How are social relationships being used?
 - o Her friend would be a business partner. Also need relationships with eventual purchasers, and with suppliers of agricultural waste.

Teaching Tool 2: Vignette on making a job for yourself in entrepreneurship

Duration: 15 minutes when used in class

Intended learning outcome: Understanding one approach to entrepreneurship

Classes in which these exercises can be used: Course where entrepreneurship is being introduced

2

Vignette:

Thadius is a recent agriculture graduate who was unable to find a job. He always wanted to work in a large company, as this seemed a secure career path. While unemployed, Thadius started thinking about starting his own business; doing something is far better than doing nothing, Thadius thought about his skills. He did very well in his agriculture education, and had a special interest in tea. From his education, he knew how to design planting, pesticide, and harvest schedules so as to improve quality. Thadius thought there might be an opportunity to start a business focused on extension services, as he knew many small-scale growers are not vertically integrated with large tea exporters. These growers sometimes receive extension services from large companies, and this can help increase their output and quality. However, many small-scale growers do not benefit from these arrangements, as they are reluctant to pay for them on their own. Thadius also knew these growers would like to access extension services. Thadius thought he saw an opportunity here. Large tea exporters might be willing to pay him as a subcontractor to deliver extension services to farmers, as this would improve company access to reliable and high-quality tea supplies. This would make it easier for these companies to access remote regions, and they would maintain flexibility by not having to hire an employee. The farmers would of course be happy to receive free services, and Thadius thinks that his could help earn them some much needed money. In this situation everyone might win: large companies get more supply, the smallholders improve production quantities and quality, and Thadius makes himself a job. When he approached companies, he got positive feedback and gathered that they would be willing to pay for this, in the right circumstances. Thadius also approached smallholders in remote regions, and got the feedback he expected: they were more than happy to have his help, if they did not need to pay anything. Thadius got preliminary commitment from 30 smallholders to receive these services. He expects this number to grow. Based on these connections, one company agreed to use Thadius's services on a trial basis, as a way of helping smallholders in more remote areas. Thadius must now go through the practicalities of getting things started. It will take some work, but Thadius is up for the challenge.

Questions to ask students:

1. What are Thadius's goals?
 - o Making a job for himself, and helping remote communities.
2. Where in the entrepreneurial process is Thadius currently?
 - o Just starting to establish the business.
3. How innovative is Thadius's idea, and how risky is it?
 - o Minimally innovative, as this idea already exists. Minimal risk.
4. What resources are important to Thadius?
 - o Transportation from location to location, tools needed for fieldwork.
5. How are social relationships being used?
 - o Relationships with farmers and with large companies are central to the business.

Teaching Tool 3: Vignette on innovative technological entrepreneurship

Duration: 15 minutes when used in class

Intended learning outcome: Understanding one approach to entrepreneurship

Classes in which these exercises can be used: Course where entrepreneurship is being introduced

3

Vignette:

Rudzani is a researcher at a leading university. She is involved in a research group which has been instrumental to developing a process through which tree fibers (or any other cellulose-heavy fibers) are used to make clothing textiles. This process produces a fabric called Tencel, which has been well-received by the fashion industry for its appearance, as well as for its sustainability properties. Rudzani believes that demand for fabrics such as Tencel will increase rapidly in the near future as the fashion industry works to transition to a less environmentally impactful business model; e.g., away from water intensive cotton, and petroleum-based synthetic fibers. Some Tencel products have already started to enter specialized clothing stores, and in the best-case scenario they could be a part of major clothing retailers' offerings in the next five years. Rudzani sees this as an opportunity worth pursuing, even if the growth rate of demand for Tencel is uncertain.

Rudzani is seriously considering leaving her current position to start a growth-oriented start-up that will supply Tencel fabric to high-end fashion brands. She has a limited business background and is unsure what the demand for Tencel will be, but she is confident in the superiority of that product. Rudzani currently has some fashion-related connections, but to make the business succeed, she would have to leverage these to expand her network. Rudzani would also need to purchase some specialized machinery and find a suitable location for production. Both endeavours would require raising significant capital.

Rudzani would act as CEO, and one of her colleagues is interested in joining as the head of marketing. Rudzani thinks she would need 2-3 additional workers. If things go well, Rudzani could see the company expanding to have 10 total employees by the end of year two. Her longer-term goal is to focus heavily on international expansion. This will be demanding work, as Rudzani will need to organize a whole business, but she is dedicated.

Questions to ask students:

1. What are Rudzani's goals?
 - o Commercializing an environmentally friendly technology.
2. Where in the entrepreneurial process is Rudzani currently?
 - o Early stages of establishing the business.
3. How innovative is Rudzani's idea, and how risky is it?
 - o Very innovative, and risky.
4. What resources are important to Rudzani?
 - o Money is critical at this point.
5. How are social relationships being used?
 - o Critical. Rudzani needs to expand her relationships in the fashion industry.

3.1.2 Entrepreneurship with companies

Teaching Tool 4: Vignette on acting entrepreneurially within a company to reorganize activities

Duration: 15 minutes when used in class

Intended learning outcome: Understanding one approach to entrepreneurship

Classes in which these exercises can be used: Course where entrepreneurship is being introduced

4

Vignette:

Chalwe is the operations manager for a Zambian livestock producer. She has been put in charge of an initiative to increase productivity at some of the company's piggeries. Currently, her company is using industry standard techniques. However, Chalwe believes that recent advances in livestock sciences may increase productivity for the company, giving it an edge in the market. For instance, given the changing climate, Chalwe thinks there is a need to reconsider the pig species being reared, parasite control techniques, feeding schedules, and how waste biomass is handled. To put these ideas into practice, Chalwe will work with a team of three others: one operations specialist, one livestock specialist, and one general purpose labourer. They will be working in three piggeries to start. Their key task will be reworking the entire rearing cycle, using the above-described methods. Though perhaps only somewhat complicated from a technical standpoint, Chalwe knows that the real challenge will be re-organizing all the people who work across the value chain. Chalwe knows that people are often resistant to change, so she will have to be inventive in how she manages this change-oriented task. Despite this complexity, Chalwe believes that thoughtfully considering these options will help give her company a competitive edge going into the future.

Questions to ask students:

1. What are Chalwe's goals?
 - o Changing how things are done in the company.
2. Where in the entrepreneurial process is Chalwe currently?
 - o Early stages of developing the idea.
3. How innovative is Chalwe's idea, and how risky is it?
 - o Innovative for the company, some risk.
4. What resources are important to Chalwe?
 - o All resources used in piggeries and in transportation of pigs.
5. How are social relationships being used?
 - o Critical. Chalwe needs to get people on board with change.

Duration: 15 minutes when used in class

Intended learning outcome: Understanding one approach to entrepreneurship

Classes in which these exercises can be used: Course where entrepreneurship is being introduced

5

Vignette:

Sipho is a manager at a company in the South African forestry industry. Sipho brings fifty years of experience to the company, which has 50 employees and does roughly 160,000,000 Rand of business per year. Like most forestry companies in South Africa, it focuses on low value-added exports, in this case of dissolving wood pulp. However, Sipho thinks there may be an opportunity to export higher value-added products, such as by processing the dissolving wood pulp into food thickeners, such as those used in yoghurt. Demand for these food additives has been increasing globally.

In speaking with existing international contacts, Sipho thinks there could be good demand for food thickeners from South Africa. However, because South African firms have not traditionally sold food thickeners internationally, there is some uncertainty about the ability of his company to break into that market. As such, there is a lot of potential from this idea, but it comes with risk.

Sipho has some international contacts, but he would want to increase this number so as to give his company a greater potential suite of clients. Moreover, his company would have to purchase new machinery and start a new production line to make the food thickeners. This will be a major capital investment for the business and would necessitate hiring additional employees, as well as raising some new capital. In addition to organizing all of these elements, Sipho would also have to arrange new logistics solutions to get the food thickeners to international markets.

Questions to ask students:

1. What are Sipho's goals?
 - o To develop a new market opportunity for the company with a higher value added.
2. Where in the entrepreneurial process is Sipho currently?
 - o Idea has been decided upon, now needs to develop the details of the idea.
3. How innovative is Sipho's idea, and how risky is it?
 - o Innovative for the company, but not innovative in general. Some risk.
4. What resources are important to Sipho?
 - o Production equipment, money to finance new sales channels.
5. How are social relationships being used?
 - o Need to make new contacts to sell the product.

Teaching Tool 6: Vignette on acting entrepreneurially to add new product lines at a company

Duration: 15 minutes when used in class

Intended learning outcome: Understanding one approach to entrepreneurship

Classes in which these exercises can be used: Course where entrepreneurship is being introduced

6

Vignette:

Esther is the head of business development for a large Zambian/Kenyan agricultural company. She is hearing more and more about consumers seeing plant-based products as an environmentally friendly substitute for other materials. For instance, there is a move to increase used agricultural waste in building materials, such as adding it to cement and concrete to form building blocks. This would reduce the use of carbon-intensive cement. Esther thinks this idea has potential, but not right now.

Instead, what is really capturing Esther's attention is the growing consumer demand for biodegradable packaging. Esther knows that corn husks, rice straw, wheat straw, and sugarcane bagasse can all be used as the basic ingredient to make packaging. In particular, cellulose and other natural polymers can be extracted from these waste products and used to make substitutes for wood and paper-based packaging. This can reduce deforestation rates.

Her company currently does not sell any such packaging, but is strongly considering adding a new production line to an existing production facility. This would be a new line of business for her company, but it can be a potentially profitable one, possibly even opening up additional opportunities in the future. Esther's team does need to better evaluate the opportunity though, making contact with prospective buyers. Esther's team also needs to do more research into what the production of the packaging material requires, and which stream of agricultural waste would be best.

Esther believes that the new production line can be out-tted using existing capital reserves. More substantially though, she will have to make new contacts to ensure that her company can get their product to consumers quickly and easily. All of this entails some risk.

Questions to ask students:

1. What are Esther's goals?
 - o Commercializing an environmentally friendly technology.
2. Where in the entrepreneurial process is Esther currently?
 - o Developing the idea and understanding the production process.
3. How innovative is Esther's idea, and how risky is it?
 - o Quite innovative, especially for the context.
4. What resources are important to Esther?
 - o The technological know-how of her company; company's money.
5. How are social relationships being used?
 - o Critical. Esther needs to make contacts both on the technology side and on the sales side.

3.2 COMPARING CHARACTERISTICS ACROSS DIFFERENT TYPES OF ENTREPRENEURSHIP

There is clearly a lot going on in these vignettes. Nonetheless, we can help students make sense of this complexity by focusing their attention on the characteristics that are common across different forms of entrepreneurship, specifically:

1. Business ideas are at the core of entrepreneurship
2. Entrepreneurship is a process
3. Entrepreneurship involves risk-taking and uncertainty
4. Entrepreneurship involves resource mobilization
5. Entrepreneurship involves forming and leveraging social relationships

We can also emphasize differences:

6. The goals of entrepreneurship
7. Levels of creativity and innovation

These different characteristics are our link to helping students understand the broader relevance of entrepreneurship. Even if they do not want to start their own business, problem solving, opportunity recognition, critical thinking, relationships, resource mobilization, and risk-taking are invaluable in their working lives. Here, we might think of entrepreneurship as an overall orientation to work, that involves trying to find new, more effective ways to get things done. Employers certainly do not want them to simply show up and say, “tell me what to do,” but instead want them to act entrepreneurially within their jobs.

By showing that there are a core set of skills connecting the act of starting a business and being an effective employee, we help all students see the relevance of entrepreneurship. This is important, as we would not want some students to dismiss entrepreneurship as ‘not for me.’ They may not want to start a business now, but perhaps later it will become relevant. Alternatively, students may be very focused on starting a business right now, but by showing them how this skill set is relevant in the corporate world, we may help them to see broader career paths. In short, there really is no reason not to teach entrepreneurship to students.

My suggestion for teaching these topics is that, after the above vignettes, you describe these characteristics one by one, referring back to the vignettes to show the differences.

3.2.1 Business ideas at the core

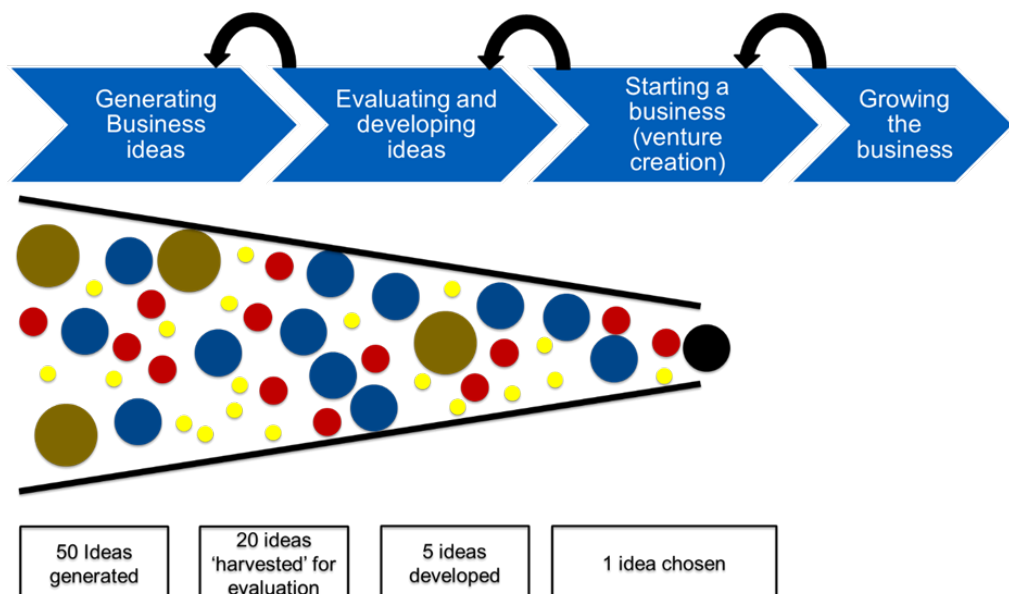
Business ideas are at the core of entrepreneurship (Davidsson, 2015). Indeed, regardless of whether you are focused on creating a business for yourself, on creating a billion-dollar company, or acting entrepreneurially within an organization, you need an idea before you can do anything. Here, we might define a business idea as a concept for a potential product or service that can be brought to market to create value. Alongside this, a business idea identifies what the organization will be doing; what processes or production techniques will be used to create value. A business idea forms the basis for establishing a new business or expanding an existing one. A business idea addresses specific needs or solves particular problems for a defined target audience.

In section 4.2 we will discuss how to come up with these ideas, while section 6 discusses how to evaluate and develop these ideas. For now though, all we want students to understand is that entrepreneurship revolves around ideas; no idea, no entrepreneurship.

3.2.2 Entrepreneurship as a process

The next thing we want students to understand is that entrepreneurship is a process (Baker, Gedajlovic, & Lubatkin, 2005; Moroz & Hindle, 2012; Shane & Venkataraman, 2000). As outlined in Figure 1, this process progressively focuses on fewer and fewer ideas, until we start a business focused on a single idea. Describing entrepreneurship as a process is important, as it helps broaden students' view beyond simply starting a business. Indeed, without first developing ideas, starting a business is impossible. Moreover, without evaluating and developing these ideas, choosing the right business to start is difficult. Across this process, ideas are always being developed; business plans are dynamic and must change based on events. It might even be that an idea does not work, but that that idea leads to new ideas. This is why the process is not unidirectional, but is iterative.

Figure 1: The entrepreneurial process and the idea funnel



3.2.3 Varying levels of risk and uncertainty

Next, students should understand that entrepreneurship involves taking risks and managing uncertainty (McMullen & Shepherd, 2006; Stewart Jr & Roth, 2001; Townsend, Hunt, McMullen, & Sarasvathy, 2018). In situations of risk, probabilities are known, can be quantified, and managed. For instance, if starting a business based on an idea that already exists in the market, there might be 40% chance of making a profit, 50% chance of breaking even, and 10% chance of a loss. In situations of uncertainty though, probabilities cannot be known, which requires entrepreneurs to operate in a different manner (Knight, 1921). Here, we can consider a new technology that has never been present in the market before; it is unclear what the potential for success is.

Entrepreneurial ideas vary substantially in their level of risk and uncertainty. This point is critical for students to understand, as many of them have a pre-existing mental image of entrepreneurship being about massively uncertain high-tech ventures. Yet, and as shown in the vignettes, students can engage in low-risk, low-uncertainty forms of entrepreneurship, such as making a job for themselves. The key point is that students should be aware of the varying levels of risk and uncertainty associated with an idea, and should pick an idea that aligns with their personal preferences.

3.2.4 Levels of creativity and innovation

We might also emphasize that ideas can be more or less creative; developing a new textile fabric out of maize is much more innovative than starting a maize processing operation. Generally, the more creative and innovative an idea is, the more risky and uncertain it is. This is critical to stress, as students may be risk-averse, but simultaneously think that entrepreneurship has to be innovative. By helping them understand that even imitation of existing businesses is viable, we can help them set risk and uncertainty to tolerable levels.

3.2.5 Resource mobilization

Entrepreneurs need financial, human, and physical resources if they are to start a business. (Korsgaard, Müller, & Welter, 2020; Simarasl, Jiang, Pandey, & Navis, 2022). Entrepreneurs identify and secure these resources through various sources such as personal savings, investors, or 'odds and ends' they have available (Baker & Nelson, 2005; Bhagavatula, Elfring, van Tilburg, & van de Bunt, 2010; Clough, Fang, Vissa, & Wu, 2019; Zimmer & Aldrich, 1987). Effective resource mobilization is critical for turning a business idea into a successful operational entity, enabling scalability and adaptability.

The actual resources that are needed will vary based on the idea; a high-tech venture naturally requires far more intensive resources than a consulting venture. As such, students should ensure that the ideas on which they focus are aligned with what they have available, and what they can acquire through their social networks.

3.2.6 Forming and leveraging social relationships

Relationships are crucial in entrepreneurship as they provide access to essential resources, knowledge, support, and potential partners (Stam, Arzlanian, & Elfring, 2014). Across the entrepreneurship process, the importance of relationships changes (Kleinhempel, Beugelsdijk, & Klasing, 2022). For instance, early on in the process, an entrepreneur may rely on their social networks to help them identify business ideas, evaluate ideas, and assess the resources needed to pursue an idea. As an entrepreneur progresses though, networks become more important as a source of much needed resources, as well as potential partners. The main thing to have students understand is simply that they should consider entrepreneurship as a deeply social activity. Regardless of the idea they pursue, their opportunities for success will improve if they have spent time developing networks.

3.2.7 Goals

Entrepreneurship can vary substantially in its goals. It can of course be about making money. Though often thought about as a financially-oriented endeavour, entrepreneurs are increasingly starting organizations to address sustainability issues, such as helping one's community, about addressing a social issue, or about rectifying an environmental problem (Anand, Argade, Barkemeyer, & Salignac, 2021; Johnson & Schaltegger, 2020; Kim & Kim, 2021). Moreover, goals can be combined within a venture; i.e., social AND environmental goals (Belz & Binder, 2017).

Most likely, students will engage with entrepreneurship as a money-first endeavour. However, we do want to give them examples of how sustainability can be integrated into this endeavour, simply so that they will at least consider it.



4 SOCIAL-PSYCHOLOGICAL PREPARATION: BUILDING AN ENTREPRENEURIAL MINDSET

Intended Learning Outcomes 2: Building an entrepreneurial mindset

1. Reflect on your own potential to be an entrepreneur
2. Understand how your education prepares you to be an entrepreneur
3. Analyze your own motivations and see where entrepreneurship fits
4. Understand the different methods for generating business ideas, and then apply them to generate your own ideas

Understanding the diversity of entrepreneurship is good, but to have impact we need students to actually start that process. If we were discussing this back in the 1990s, there would be seemingly little to do. Back then, researchers argued that people were ‘born entrepreneurs,’ as the propensity to be an entrepreneur was seen as flowing from stable individual traits. However, emerging evidence did not support the strong form of this view. Traits do matter, but only as one factor amongst many. This led to the search for new explanations.

Current research stresses that becoming an entrepreneur is situational, capability-based (Davidsson, 2015), and ultimately teachable {Schultz, 2022 #6256}. Situations, such as being unemployed, one’s social environment, having been approached by a prospective business partner, or wanting personal freedom all drive people to entrepreneurship (Nikiforou, Dencker, & Gruber, 2019). Capabilities include having the motivation to be an entrepreneur, being willing to take risks, having resilience, taking personal initiative, being adaptable, and looking for new ideas (Baum & Locke, 2004; Wales, Patel, Parida, & Kreiser, 2013; Williams & Gurtoo, 2012).

Flowing from this, the research is clear: we can build these capabilities, shorthand as an entrepreneurial mindset. This does not mean that anyone and everyone will become a startup billionaire, nor does it mean we can get any specific individual to be an entrepreneur. Instead, through proper educational efforts we can increase the likelihood that some students will become entrepreneurs. Here, efforts should focus on developing an entrepreneurial mindset, which has two major parts:

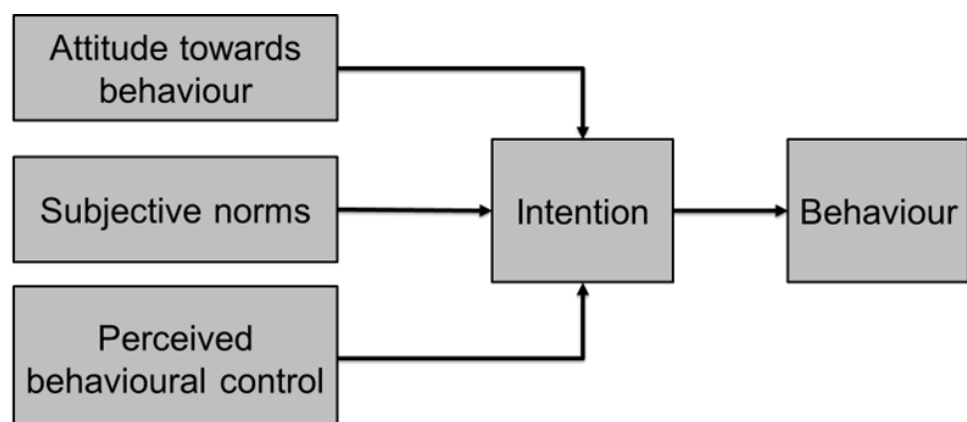
1. Seeing oneself as an entrepreneur; developing entrepreneurial intentions
2. Generating business ideas

4.1 SEEING ONESELF AS AN ENTREPRENEUR; DEVELOPING ENTREPRENEURIAL INTENTIONS

4.1.1 The theory of planned behaviour

Seeing oneself as an entrepreneur is especially important when prevailing cultural attitudes run counter to entrepreneurship. Fortunately, much research has been done on this topic, and there are some simple ways to help students see themselves as entrepreneurs. The backbone for much of this research is the theory of planned behaviour (TPB), which is summarized in Figure 2. Here, a 'behaviour' is any concrete action undertaken in a particular context and time (Ajzen, 1991), such as exercising, cooking dinner, stopping smoking, or starting a business. As a theory, TPB takes behaviour as its outcome, and works backward to understand what leads to that behaviour. Proximally, one of the best predictors of engaging in a behaviour is the intention to partake in that behaviour; the intention to exercise is a straightforward predictor of whether you will exercise or not.

Figure 2: The theory of planned behaviour



Where the theory adds most value is looking at what leads to intentions. Three broad categories are focused on here: attitudes, subjective norms, and perceived behavioural control (Armitage & Conner, 2001). Attitudes are specific to a behaviour, and are the degree to which an individual has a positive or negative appraisal of that behaviour (Ajzen & Timko, 1986). The more positive the appraisal, the more likely an individual is to have intentions to undertake that behaviour (Fishbein & Ajzen, 1975); one is much more likely to eat their favourite snack than to dive into a pit of snakes.

For their part, subjective norms are the perceived social pressures to perform or not perform a given behaviour (Kautonen, van Gelderen, & Fink, 2015). These are impacted by broader cultural considerations, by marketing and advertising, and by opinions in one's social network. For instance, negative cultural views towards smoking may pressure an individual to quit smoking.

Finally, perceived behavioural control refers to an individual's perceptions of the degree of difficulty of performing a given behaviour (Godin, Valois, & Lepage, 1993; Madden, Ellen, & Ajzen, 1992). Does someone believe they can or cannot do something? People generally have stronger intentions to perform behaviours they view themselves as capable of performing. These perceptions are shaped by internal factors such as individual skills and abilities, as well as by external factors such as the available resources and broader environmental factors.

These three factors jointly influence intentions. So, while an individual might have a positive attitude towards starting a business, negative societal views of this behaviour may act more strongly, leading to little net intention.

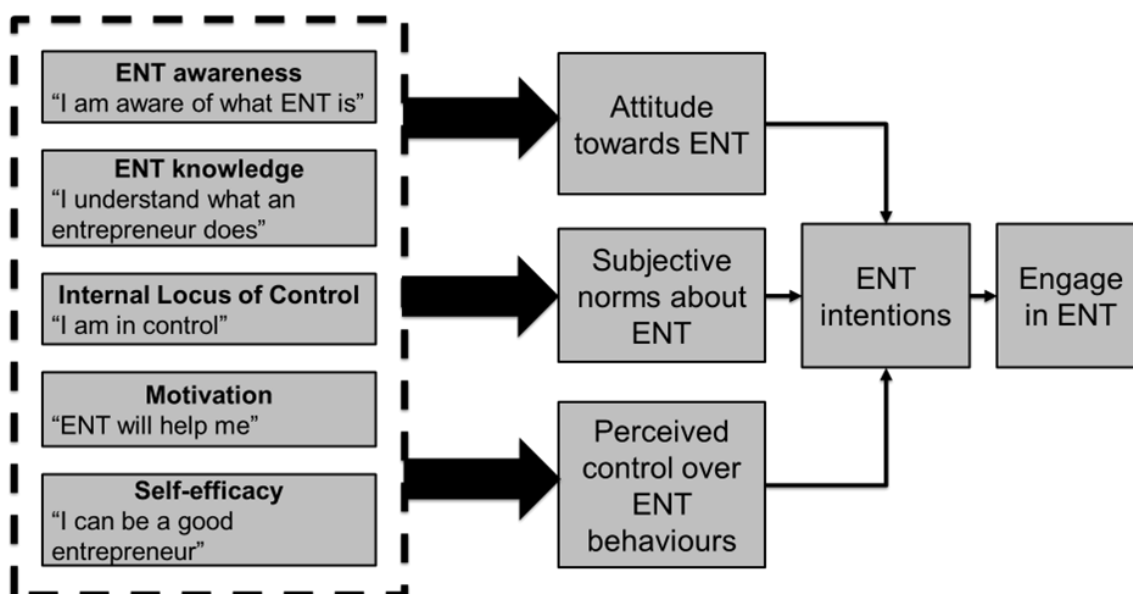
4.1.2 Theory of planned behaviour and entrepreneurship

Applying the TPB to entrepreneurship education, our goal is helping students develop entrepreneurial intentions, which can be defined as "a deep commitment to establish a company and to make a plan to take necessary actions" (Schultz, 2022: 319). Scholars often apply the TPB to entrepreneurship (Kautonen et al., 2015; Rauch & Hulsink, 2015; Tatiana, Lars, & Ute, 2011), and work consistently shows that courses on entrepreneurship help develop intentions (Hartsenko & Venesaar, 2017; Kisubi & Bonuke, 2021; Nade & Malamsha, 2021; Schultz, 2022).

Indeed, and as shown in Figure 3, simply being made more aware about entrepreneurship can have a positive impact on both attitudes as well as subjective norms, leading to elevated intentions (Liñán, 2004). Using exercises such as those in section 3 are thus important. For instance, knowing the different types of entrepreneurship, and that people similar to the student undertake these forms of entrepreneurship, can improve subjective norms. This may be especially important in contexts where entrepreneurship is looked down upon for university graduates. Options for integrating awareness into teaching were given in the previous subsection.

Figure 3: Theory of planned behaviour applied to entrepreneurship

Moreover, developing entrepreneurial knowledge, as discussed at length



below in sections 6, 7, 8, and 9, also positively influences entrepreneurial intentions by improving attitudes, subjective norms, and perceived behaviour control (Kisubi & Bonuke, 2021; Nade & Malamsha, 2021). For instance, knowing how to develop business ideas gives students the confidence that they can be an entrepreneur. I leave more in-depth discussions of how to integrate these considerations into teaching for below.

Beyond general engagement with entrepreneurship, research highlights three additional concrete factors that foster the attitudes, norms, and perceived control that in turn develop intentions. We can integrate short exercises aimed at these three factors in our existing courses, as discussed below.

1. Developing an internal locus of control
2. Developing the motivation to be an entrepreneur
3. Developing self-efficacy

4.1.3 Developing an internal locus of control

Showing students that they can control the outcome of their entrepreneurial actions is important. Why would they undertake entrepreneurship if they felt they could not control outcomes? Within the theory of planned behaviour, this works primarily by increasing perceived behavioural control.

Indeed, there is a strong link between having an internal locus of control and entrepreneurial intentions (Eckhardt & Shane, 2010; Nade & Malamsha, 2021). Here, someone with an internal locus of control believes they control the outcomes of their behaviours. This is because they believe their efforts, decision, skills, and abilities determine their successes and

failures (Ajzen, 2020). This can be contrasted with an external locus of control, where people believe that outside forces, other people, or simply luck determine outcomes. Locus of control is specific to certain tasks or life domains; one can have an internal locus of control for the ability to make friends, but an external locus of control for performance in the workplace.

Crucially, we can help our students develop an internal locus of control (Schultz, 2022; Valerio, Parton, & Robb, 2014). For instance, short exercises, such as those shown in the below toolbox, can help. These exercises should be repeated 2-3 times in a single course, and show up in perhaps 1-2 courses per year.

7

Teaching Tool 7: Exercises for students to develop an internal locus of control

Duration: 5-10 minutes each if done in class, or 10-15 minutes if added to an assignment

Intended learning outcome: Understanding that by virtue of one's actions and abilities, they can exert control over the outcome of entrepreneurial endeavors related to farming and forestry.

Classes in which these exercises can be used: Anything with an applied aspect to it; e.g., crop production and management, pest management, or animal husbandry, but not a basic biology or plant science class.

Questions that can be easily inserted into any given lecture:

1. How can the knowledge you learned (today in class/in this course/in your degree) help you control an agricultural business? Describe in detail at least three ways.
2. When someone is processing agricultural products, what do they do to influence their ability to sell the processed product? E.g., maize flour.
3. What actions that a farmer undertakes influence crop yields?
4. How does good preparation decrease a farmer's vulnerability to droughts?
5. What did you learn from today's experiment/ field work that you can use as a farmer?
6. Everyone knows that the weather can affect agriculture outcomes, but what do farmers and entrepreneurs control? How do they shape their own destiny?

Answers to exercises: Answers will vary depending on the class in which the question is asked. There are also a multitude of different answers. For instance, there are many things that a farmer controls. We would simply want students to use knowledge from that class to answer the question. As long as the answer is viable, it is a good answer.

4.1.4 Developing the motivation to be an entrepreneur

Helping students become motivated by entrepreneurship is central to developing their intentions to do it (Schultz, 2022). Why would they do something they see no point to? Within the theory of planned behaviour, this works especially by improving attitudes towards entrepreneurship; if they think it is helpful, they will have positive attitudes. In class, we want to help students see a link between entrepreneurship and their overall life goals. Exercises such as the below can help.



Teaching Tool 8: Exercises for students to develop the motivation to be an entrepreneur

Duration: 5 minutes each if done in class, or 5-10 minutes if added to an assignment

Intended learning outcome: Seeing how entrepreneurship can be useful for accomplishing ones' goals and aspirations, such as employment, financial security, independence, and community development

Classes in which these exercises can be used: Best placed in courses where entrepreneurship is first introduced, in courses about agricultural management, or in final year courses where students consider their job opportunities.

Questions that can be easily inserted into any given lecture:

1. How can being an entrepreneur help you achieve your short-term, long-term, and life goals?
2. What else can being an entrepreneur help you accomplish?
3. How can being creative and innovative help you in a job in a company?
4. How does problem-solving help you excel in the agriculture sector?
5. How can being an entrepreneur help you improve your community's well-being?

Answers to exercises: As with locus of control questions, answers here will vary. The actual substance of the answer – i.e., how they say entrepreneurship is important – does not matter that much, as the point is to get them to make these connections themselves. If the question is being evaluated, any answer that is credible should be rewarded.

4.1.5 Developing self-efficacy

Self-efficacy, the individual's belief in their ability to perform a specific behaviour, is also important if we want our students to engage in entrepreneurship (Schmutzler, Andonova, & Diaz-Serrano, 2019). Why would they undertake entrepreneurship if they do not think they are good at it? Like internal locus of control, self-efficacy primarily works to increase perceived behavioural control. However, it is distinct from having an internal locus of control, as one can think their actions influence an outcome, but not believe they can perform those actions well. In class, we can use exercises such as those below to develop self-efficacy.

9

Teaching Tool 9: Exercises for students to develop self-efficacy

Duration: 5-10 minutes each if done in class, or 10-15 minutes if added to an assignment

Intended learning outcome: Understanding that the knowledge, skills, and abilities they developed as part of their education can help them be effective entrepreneurs

Classes in which these exercises can be used: Anything with an applied aspect to it; e.g., crop production and management, pest management, or animal husbandry, but not a basic biology or plant science class.

Questions that can be easily inserted into any given lecture:

1. Describe a time when you successfully solved a problem on the farm or in a related project? What steps did you take, and why were these helpful?
2. What parts of agriculture are you very capable at?
3. What skills do you possess that can help you be a successful farmer/agriculturalist, or a successful entrepreneur in the agriculture value chain?
4. Think of a situation where you faced a significant obstacle in a project. How did you overcome it?
5. How would you identify and capitalize on new opportunities in the agricultural market?
6. What innovative practices or technologies could you implement to increase efficiency on your farm, or in your value-added activities?

Other approaches:

- Guest speakers/mentors to help students see that others, similar to them, are capable.
- Using a problem-based approach to give students exposure to difficult challenges, and build confidence in their own abilities.

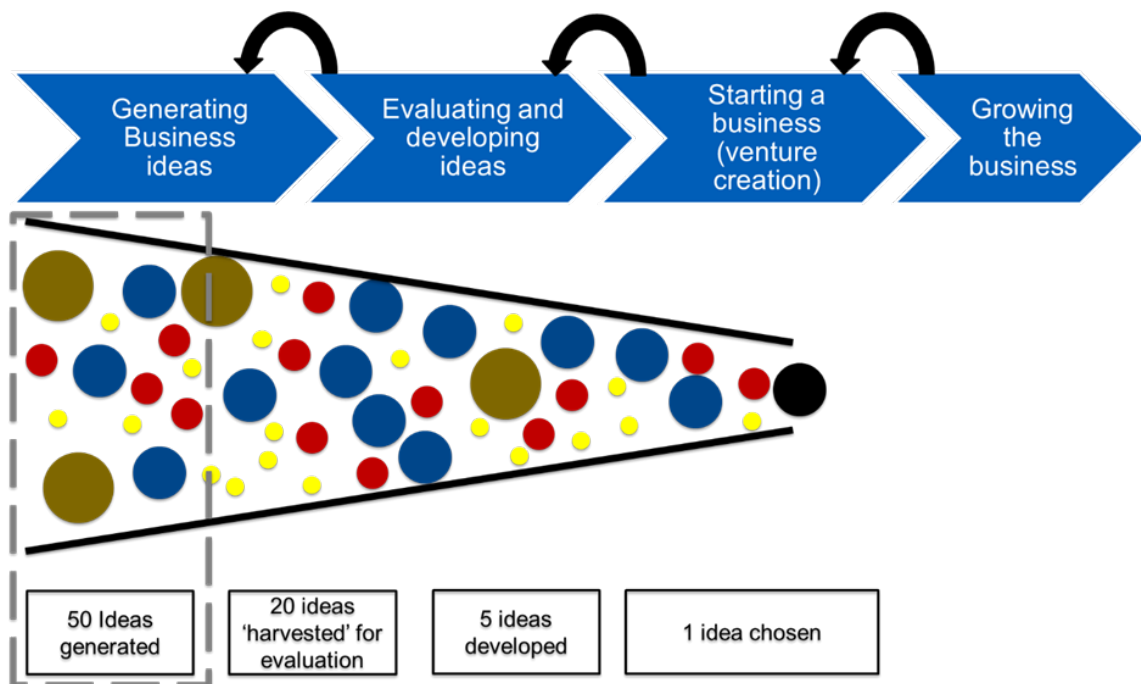
Answers to exercises: As long as students are using course-related material and making credible connections to entrepreneurship, this exercise is accomplishing what it should, and students should be rewarded as such.

4.2 GENERATING BUSINESS IDEAS

The second part of developing an entrepreneurial mindset is searching for and coming up with business ideas. Indeed, business ideas are at the core of entrepreneurship (Davidsson, 2015; Eckhardt & Shane, 2010; Shane, 2003; Shane & Venkataraman, 2000); you cannot start a business if you do not first have an idea of what you want to do. As such, we want to give our students the tools to do this effectively. Integrating this content into your courses and curricula can be done non-disruptively. Small exercises that students see a few times per course can do a lot.

At this point, we do not want students to start evaluating whether or not an idea is good. Even if they come up with an outlandish idea that cannot work, this might lead them to other ideas, or might inspire their peers. Narrowing down the list of ideas is a task for later. We are at the left of the idea funnel in Figure 4. We eventually want to get to a single great idea that can be used to start a business, but we do not start at that point.

Figure 4: The idea funnel and idea generation



For now, all that students should ensure is that they can explain what they are selling, what they are doing in the business, and to whom they are selling. These ideas be extremely innovative, or they can imitate existing businesses. It does not matter, as they are still ideas. Quick guidelines for students can be found in the below toolbox. Section 6 gives ways to evaluate these ideas.

10

Teaching Tool 10: Explaining idea generation to students

Duration: 5 minutes when done in class. Done prior to using below exercises.

Intended learning outcome: Understand that at the early stages, we are not yet evaluating whether ideas are good or bad. Generating any ideas is beneficial.

Classes in which these exercises can be used: Anything with an applied aspect to it.

Explanation for students:

In a few minutes, we are going to do some exercises to help you come up with your own business ideas. In doing this, we are not yet worried about whether the idea is 'good' or 'bad'. All we want is ideas. A bad idea may help you see another idea. So, just make sure you can answer three questions about the idea:

- What are you selling?
 - The potential combination of goods and services, such as a type of wood product
- What are you doing?
 - E.g. processing eucalyptus
- Who are you selling to?
 - Must have a potential target market, such as to a certain type of consumer in a certain part Kenya

Showing students the idea funnel is also useful.

There are seemingly countless exercises that can be used to develop ideas, as shown in Figure 5. When deciding what to use though, we must ensure that students who may have limited business background can easily understand and follow the exercise. The exercises in the below teaching toolboxes generally strike the correct balance. These exercises can be used in any class with a practical aspect to it, and might appear 2-3 times per course. Students generally find this refreshing, as they get to apply what they have been learning.

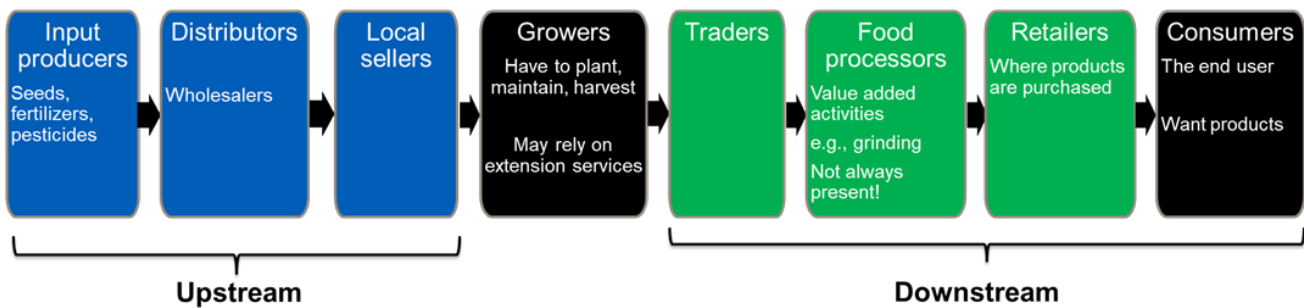
Figure 5: List of idea generation exercises

1. Brainstorming	22. SCAMPER	42. Concrete stimuli	63. Random Words
2. Reverse Brainstorming	23. Attribute listing	43. Forced analogy	64. Remembrance
3. Starbursting	24. Morphological analysis	44. Gallery	65. Rubber-ducking
4. The Charette Procedure	25. Matrix analysis	45. Passive searching	66. Take a break
5. Crawford slip writing method	26. Six thinking hats	46. Storyboarding	67. Pause
6. Round-robin brainstorming	27. Po (Provocation)	47. Braindrawing	68. Greetings cards
7. Rolestorming	28. Talking pictures	48. Brain sketching	69. Unfolding
8. Role-play	29. The list of 100	49. Nominal Group Technique	70. Value Engineering
9. Electronic Brainstorming	30. Listing	50. Bodystorming	71. Wishing
10. Brainwriting	31. Heuristic ideation technique (HIT)	51. Assumption Busting	72. Concept metaphors and analogies
11. 6-3-5	32. Design Heuristics	52. Brainmapping	73. Ideation game
12. Pool method	33. TRIZ	53. Challenge	74. Word tree design by analogy
13. Idea card (pin card) method	34. C-Sketch	54. Essence	75. Forward steps
14. Post-Up	35. Concept generating matrix	55. Forced Conflict	76. Backward steps
15. Constrained brainwriting	12 c 2020 by ASME	56. How-How Diagram	
16. Electronic Brainwriting	36. Ideation session	57. How to	
17. The spreadsheet technique	37. SDI	58. The Kipling method	<i>Kirjavainen, Senni & Hölttä-Otto, Katja. (2020). Deconstruction of idea generation methods into a framework of creativity mechanisms.</i>
18. Interactive brainwriting	38. Laddering	59. Lotus Blossom	
19. Brainwriting game	39. Synectics	60. Chunking	
20. Metaphorical thinking	40. Delphi Method	61. Mind-mapping	
21. Reversal	41. SIT	62. PSI	

4.2.1 Generating ideas along the value chain

Students should be familiar with the value chain. For many agricultural products, this looks like Figure 6. Referring to the value chain helps with idea generation for three main reasons. First, it reminds students that ideas can exist anywhere along the whole chain. Second, it provides a visual reference for thinking about ideas. Third, it separately focuses students' attention on small segments that are more analytically tractable. For instance, we might separately discuss ideas in the upstream component, on the farm (growers), downstream, and on consumers.

Figure 6: Generic value chain for agriculture



When having students generate ideas, showing pictures can be helpful, as this brings different things to mind. For instance, when doing the idea generation exercise for the upstream part of the value chain, we might show pictures such as those in Figure 7.

Figure 7: Pictures for the upstream component of the value chain. Clockwise from top right: an agriculture supply shop, fertilizer deliveries, agricultural extension services, on-farm fertilizer use, input seeds



11

Teaching Tool 11: Exercise to generate ideas along the value chain

Duration: 15 minutes when done in class.

Intended learning outcome: Generate business ideas related to agriculture and natural resources.

Classes in which these exercises can be used: Anything with an applied aspect to it.

Visual aids: Display the value chain on the board/slides, highlighting the component you want them to focus on. Also display a series of pictures related to that part of the value chain.

Explanation for students:

Agriculture is a complex activity, spanning a long value chain. For this exercise, we are going to focus on the [upstream components/on the farm growing/downstream components/end consumer and the products they want]. Your task, working with a partner, is to come up with business ideas that exist in this part of the value chain. These might be innovative ideas, or they might replicate existing businesses. Remember, we are not worried about whether an idea is good or not, we just want to come up with as many as possible. To help you with generating ideas, I will also show you a series of pictures.

Potential ideas:

1. Start medium-sized farm: Establish a farm that produces maize at scale and is able to sell into large urban centers
2. Start a piggery: Establish a piggery to sell pigs into the local market
3. Enrich maize flour before selling it in upscale shops: Add vitamins and minerals into maize flour to help improve nutrition
4. Stockpile food for the dry season: Buy staple grains when prices are low, and sell them during the dry season when prices are high
5. Start an artisanal brand of coffee beans: Develop a new upscale brand of coffee that consumers in international markets will appreciate

4.2.2 Generating business ideas from challenges

Another way of generating business ideas is to focus on challenges faced by people anywhere along the value chain. The basic logic here is that if you can solve someone's challenge, there is a chance they would be willing to pay you for it, and a willing customer is the cornerstone of a successful business. The below exercise is an easy way of having students do this.

12

Teaching Tool 12: Exercise to generate ideas

Duration: 10 minutes when done in class.

Intended learning outcome: Generate business ideas related to agriculture and natural resources.

Classes in which these exercises can be used: Anything with an applied aspect to it.

Visual aids: This can be coupled with the visuals used in the value chain exercise, or just with pictures.

Explanation for students:

We are going to undertake a multi-step process to generate business ideas. The premise of this exercise is that if you can solve someone else's challenge, they might pay you. In the first step, you will work by yourself, then you will join with a partner or small group.

Question 1: What are the current challenges in the agriculture and livestock sectors? Where is efficiency lost? Write a list of at least five different things. It may be helpful to think along the value chain: planting, growing + pest control, harvesting, transporting, processing, upgrading

Question 2: Work with a partner. Combine your lists of challenges. Discuss possible solutions to these challenges. How can they be fixed? Can you make a business out of any of these solutions?

Potential ideas:

6. Farm Insurance: Develop affordable micro-insurance products to protect farmers against crop failure due to natural disasters.
7. Machinery leasing: Start a business leasing farm machinery and equipment to smallholder farmers who cannot afford to buy them.
8. Affordable irrigation solution: Develop cost-effective irrigation systems to help farmers combat drought and water scarcity.
9. Mobile phone-based market platform for selling: Create a mobile app to connect farmers directly with buyers, reducing middlemen and ensuring fair prices.
10. Cold-storage facilities: Establish community cold storage units to reduce post-harvest losses and extend the shelf life of perishable produce

4.2.3 Generating business ideas by addressing climate change

13

Yet another way we can generate business ideas is by addressing climate change. This can mean either reducing the environmental footprint somewhere in the agricultural value chain, or making some link in the chain more resilient to climate change. These types of ideas will become increasingly important in a changing world.

Teaching Tool 13: Exercise to generate ideas

Duration: 15 minutes when done in class.

Intended learning outcome: Generate business ideas related to agriculture and natural resources.

Classes in which these exercises can be used: Anything with an applied aspect to it.

Visual aids: You might show pictures of how climate change impacts the farm; e.g., floods, droughts, disease from animals.

Explanation for students:

The premise of this exercise is that climate change has many impacts. If you can address some of them, farmers might be willing to pay you. Additionally, if you can reduce the environmental footprint of farming, this adds value to farm activities. In the first step, you will work by yourself, then you will join with a partner or small group.

Question 1: How does climate change impact how farming is done, making it harder? Write a list of at least five different things.

Question 2: Work with a partner. Combine your lists of impacts. Discuss ways to address this impact. Can you make a business out of any of these solutions?

Question 3: How can you reduce the climate impact of farming? Write a list of at least five different things.

Question 4: Work with a partner. Combine your lists. Is there any way you can think of getting people to pay for this reduced impact? Will consumers see the value?

Potential ideas:

11. Develop an eco-tourism farm: Establish a farm that combines sustainable agriculture with tourism, offering visitors educational tours, hands-on farming experiences, and eco-friendly accommodations.
12. Develop climate-resilient crop varieties: Develop and distribute seeds resilient to extreme weather conditions, such as drought-tolerant maize or flood-resistant rice.
13. Solar-powered irrigation: Design and implement solar-powered irrigation solutions to reduce dependency on rainwater and mitigate the effects of droughts.
14. Rainwater harvesting system: Install and maintain rainwater harvesting systems to ensure a reliable water supply during dry spells and reduce water stress on crops.
15. Build village-based bioreactors working on animal waste: Establish biogas plants on farms to convert agricultural waste into renewable energy, reducing methane emissions and providing a sustainable energy source.

4.2.4 Generating business ideas using knowledge learned in class

Another variation of the same basic approach is to ask students how they can create businesses using the knowledge they learned in class. The actual ideas will of course vary based on the class in which this question is asked. This question is also very helpful for having students see themselves as entrepreneurs, as it shows a connection between their knowledge and market opportunities.

14

Teaching Tool 14: Exercise to generate ideas

Duration: 10 minutes when done in class.

Intended learning outcome: Generate business ideas related to agriculture and natural resources.

Classes in which these exercises can be used: Anything with an applied aspect to it.

Explanation for students:

We are going to undertake a multi-step process to generate business ideas. The premise of this exercise is that things you have learned in class can help you start a business. In the first step, you will work by yourself, then you will join with a partner or small group.

Question 1: What are the most interesting things that you have learned in this course? Write out at least five.

Question 2: Work with a partner. Combine your lists. How can you start a business using this knowledge? What could you do really well with this knowledge?

Potential ideas:

16. Hydroponic Farming Systems: Design and implement hydroponic systems to grow crops without soil, using nutrient-rich water solutions, which can save water and increase yields.
17. Climate-Smart Agriculture Training: Offer training programs for farmers on climate-smart agricultural practices, including conservation tillage, crop rotation, and integrated pest management, to enhance resilience and reduce greenhouse gas emissions.
18. Soil Health Monitoring Kits: Create an affordable and portable soil testing kits to help farmers monitor soil health and nutrient levels, ensuring optimal crop growth.
19. Offer extension services directly to farmers: Offer face-to-face services directly to farmers
20. Mobile-phone based agricultural extension services: Create a mobile app that provides farmers with access to agricultural extension services, offering advice on best practices, pest management, and crop management.

4.2.5 Generating business ideas by thinking of novel uses of existing crops

We can develop business ideas by thinking about how to creatively use existing resources. For instance, how else might we use maize? What other uses can wood be put towards? This exercise tends to surface more innovative or novel ideas, which is great. It lets students flex their creative muscles.

15

Teaching Tool 15: Exercise to generate ideas

Duration: 10 minutes when done in class.

Intended learning outcome: Generate business ideas related to agriculture and natural resources.

Classes in which these exercises can be used: Anything with an applied aspect to it.

Visual aids: You might show students some common agricultural products.

Explanation for students:

The premise of this exercise is that you can come up with some creative uses for agricultural crops.

Question: What innovative ideas come to mind for using existing agricultural crops? How can the starches, polymers proteins, and fibers be used to make new products that are not currently widespread?

Potential ideas:

21. Maize-based milk: Create a plant-based milk alternative from maize, utilizing its starches and proteins. This offers a nutritious, lactose-free, and vegan-friendly beverage, providing a new market for maize farmers and catering to growing demand for dairy alternatives.
22. Make a sorghum-based plastic: Create biodegradable plastics from sorghum's natural polymers, offering an eco-friendly alternative to conventional plastics and adding value to the crop, benefiting both the environment and farmers.
23. Rice bran products: Utilize rice bran to create high-nutrient products like rice bran oil, which can be used in cooking, and rice bran supplements for health and wellness.
24. Fruit leather production: Create healthy, natural fruit leathers from surplus fruits such as mangoes and pineapples, offering a new snack option for the market.
25. Essential oil extraction: Extract essential oils from locally grown herbs and plants like lemon grass, eucalyptus, and lavender, for use in aromatherapy, cosmetics, and natural remedies.

4.2.6 Generating business ideas out of waste products

A final option is generating business ideas by looking at ways to use waste products that would otherwise be thrown away. This has an obvious environmental benefit, and should thus be encouraged for students.

16

Teaching Tool 16: Exercise to generate ideas

Duration: 10 minutes when done in class.

Intended learning outcome: Generate business ideas related to agriculture and natural resources.

Classes in which these exercises can be used: Anything with an applied aspect to it.

Visual aids: You might show students some typical waste products.

Explanation for students:

We are going to undertake a multi-step process to generate business ideas. The premise of this exercise is that if you can turn waste products into something useful, you might have a good business idea on your hands. Waste products are generally free or inexpensive. In the first step, you will work by yourself, then you will join with a partner or small group.

Question 1: What are the waste products in the agriculture and livestock industries? Write a list of at least five different things.

Question 2: Work with a partner. Combine your lists of waste products. What products can you make out of these waste products? Would people be willing to buy them?

Potential ideas:

26. Coconut waste products: Convert coconut husks and shells into value-added products like activated charcoal, natural fibers, and biofuels, maximizing the use of coconut by-products.
27. Banana fiber textiles: Extract fibers from banana stems to produce textiles, ropes, and biodegradable packaging materials, offering a new use for banana plantation waste
28. Coffee Pulp Fertilizer: Transform coffee pulp, a by-product of coffee processing, into organic fertilizer or compost, enhancing soil fertility and reducing waste.
29. Cassava Peel Bioethanol: Produce bioethanol from cassava peels, turning this agricultural waste into a renewable energy source for cooking and heating.
30. Mango Seed Flour: Process mango seeds into flour, which can be used as a gluten-free alternative in baking and cooking, adding value to a typically discarded resource.

5 LIST OF POTENTIAL BUSINESS IDEAS, THEIR VALUE PROPOSITION, TARGET CUSTOMER SEGMENT, AND INITIAL EVALUATION OF THE IDEA'S VIABILITY

Using the above exercises, we might ultimately develop a list of ideas that are summarized below. We will revisit these ideas in the next section, developing a value proposition and customer segment for each, as well as forming an initial evaluation of the idea's viability. Hence, the value proposition, customer segment, and evaluation are included in the below table. **Please use these ideas in class!**

#	Idea	Explanation, value proposition, customer segment	Initial evaluation
1	Start medium-sized farm	Explanation: Produce maize at scale and sell into large urban centers. Value proposition: Provide a consistent supply of high-quality maize to large urban centers, ensuring reliability and scale. Customer segment: Wholesale buyers, large retailers, and food processing companies in urban areas.	High, due to strong and consistent demand for maize from the target customer segment.
2	Start a piggery	Explanation: Establish a piggery to sell pigs into the local market. Value proposition: Supply healthy, locally raised pigs to meet the demand for fresh pork in the local market. Customer segment: Local butchers, meat processors, and consumers looking for locally sourced pork.	High, as long as there is strong and consistent demand for pork from the target customer segment.
3	Enrich maize flour before selling it in upscale shops	Explanation: Add vitamins and minerals into maize flour to improve nutrition. Value proposition: Offer enriched maize flour fortified with essential vitamins and minerals, enhancing nutritional value for health-conscious consumers. Customer segment: Upscale grocery stores, and nutrition-focused consumers.	Moderate, as it is unclear the target customer segment is large enough.
4	Stockpile food for the dry season	Explanation: Buy staple grains when prices are low and sell them during the dry season when prices are high. Value proposition: Ensure food security by purchasing staple grains at low prices and selling them during the dry season when demand and prices are higher. Customer segment: Local households, small retailers, government nutrition programs.	Moderate to high. The value proposition resonates, and food is needed throughout the year.
5	Start an artisanal brand of coffee beans	Explanation: Develop a new upscale brand of coffee that consumers in international markets will appreciate. Value proposition: Highlight the unique flavors and qualities of local coffee. Customer segment: International specialty coffee markets, high-end cafes, and gourmet food retailers.	High viability, as there is proven demand for artisanal coffee on the international market.
6	Farm insurance	Explanation: Develop affordable micro-insurance products to protect farmers against crop failure due to natural disasters. Value proposition: Provide affordable micro-insurance to protect farmers against crop failure, ensuring financial stability in the face of natural disasters. Customer segment: Smallholder farmers and agricultural cooperatives.	Moderate viability, as getting the target farmers to understand and trust the product can be challenging.
7	Machinery leasing	Explanation: Start a business leasing farm machinery and equipment to smallholder farmers who cannot afford to buy them. Value proposition: Offer flexible leasing options for farm machinery and equipment, enabling smallholder farmers to access modern technology without high upfront costs. Customer segment: Smallholder farmers and farming cooperatives.	High viability, due to need for cost effective machinery access.

#	Idea	Explanation, value proposition, customer segment	Initial evaluation
8	Affordable irrigation solution	Explanation: Develop cost-effective irrigation systems to help farmers combat drought and water scarcity. Value proposition: Deliver cost-effective and efficient irrigation systems to help farmers mitigate drought and improve water management. Customer segment: Small and medium-sized farmers in drought-prone areas.	High viability if product can be effectively created.
9	Mobile phone-based market platform for selling	Explanation: Create a mobile app to connect farmers directly with buyers, reducing middlemen and ensuring fair prices. Value proposition: Connect farmers directly with buyers through a mobile app, ensuring fair prices and reducing reliance on middlemen. Customer segment: Smallholder farmers and local buyers (retailers, consumers).	Moderate viability, as would require change in purchasing and sales patterns.
10	Cold-storage facilities	Explanation: Establish community cold storage units to reduce post-harvest losses. Value proposition: Extend the shelf life of perishable produce, ensuring a longer sales duration and better prices. Customer segment: Smallholder farmers and agricultural cooperatives dealing with perishable goods.	Low viability, as local produce planting choices have been optimized to work without the cold storage chain.
11	Develop an eco-tourism farm	Explanation: Establish a farm that combines sustainable agriculture with tourism, offering visitors educational tours, hands-on farming experiences, and eco-friendly accommodations. Value proposition: Provide an immersive experience combining sustainable agriculture and tourism. Customer segment: Eco-conscious tourists, educational groups, and sustainability enthusiasts.	Moderate to high viability, due to growing eco-tourism market. Startup costs will be significant, so less viable for some people.
12	Develop climate-resilient crop varieties	Explanation: Develop and distribute seeds resilient to extreme weather conditions, such as drought-tolerant maize or flood-resistant rice. Value proposition: Improve crop resilience, enhancing average productivity and the dependability of income streams. Customer segment: Farmers in climate-vulnerable areas, agricultural cooperatives, and seed distributors.	In general, high viability due to the importance of the seeds. However, very expensive process which is unlikely to be appropriate for a startup.
13	Solar-powered irrigation	Explanation: Design solar-powered irrigation solutions to reduce dependency on rainwater and mitigate the effects of droughts. Value proposition: Reduce water dependency and combat drought, lowering operational costs and enhancing crop production. Customer segment: Small to medium-sized farmers in arid and semi-arid regions without reliable access to electricity.	Limited viability, as the target customer segment lacks the ability to pay the large costs.
14	Rainwater harvesting system	Explanation: Install and maintain rainwater harvesting systems. Value proposition: Ensure a reliable water supply during dry spells and reduce water stress. Customer segment: Farmers in drought-prone areas, rural communities, and agricultural developers.	Moderate viability, with overall viability depending on how cost-effective the solution is.
15	Village-based bioreactors working on animal waste	Explanation: Establish biogas plants on farms to convert agricultural waste into renewable energy. Value proposition: Provide reliable access to gas for cooking and processing, while also reducing methane emissions. Customer segment: Rural communities, livestock farmers, and environmental sustainability projects.	Moderate viability, as technology is in place, but getting acceptance from villages can be challenging.
16	Hydroponic farming systems	Explanation: Design and implement hydroponic systems to grow crops without soil, using nutrient-rich water solutions. Value proposition: Save water and increase yields as well as growing density. Customer segment: Urban farmers, greenhouse operators, and tech-savvy agricultural entrepreneurs	Low or moderate viability, as it is unclear that the customer segment really wants this.

#	Idea	Explanation, value proposition, customer segment	Initial evaluation
17	Climate-smart agriculture training	<p>Explanation: Offer training programs for farmers on climate-smart agricultural practices, including conservation tillage, crop rotation, and integrated pest management.</p> <p>Value proposition: Empower farmers with knowledge and skills in climate-smart agricultural practices to improve sustainability, productivity, and resilience against climate change.</p> <p>Customer segment: Smallholder farmers, agricultural extension officers, and farming cooperatives.</p>	Moderate to high viability. The training is important, but it is unclear if the target customer segments will see the value.
18	Soil health monitoring kits	<p>Explanation: Create affordable and portable soil testing kits to help farmers monitor soil health and nutrient levels.</p> <p>Value proposition: Enable monitoring of soil health, so as to optimize fertilizer use, saving money and increasing yield.</p> <p>Customer segment: Smallholder and medium-sized farmers, agricultural advisors, and cooperative groups.</p>	Moderate to high viability depending on the cost and ease-of-use of the system.
19	Offer extension services directly to farmers	<p>Explanation: Offer face-to-face services directly to farmers.</p> <p>Value proposition: Provide tailored advice and support to improve farming practices and yields.</p> <p>Customer segment: Smallholder farmers, rural farming communities, and agricultural support organizations.</p>	Moderate viability, as it is unclear if the target customer segment will pay for something they might expect for free from the government.
20	Mobile phone-based agricultural extension services	<p>Explanation: Provide farmers with access to agricultural extension services, offering advice on best practices, pest management, and crop management.</p> <p>Value proposition: Enable instant access to expert advice on best practices through a user-friendly mobile app, enhancing productivity and knowledge.</p> <p>Customer segment: Smallholder farmers, agricultural cooperatives, and extension officers in rural and semi-urban areas.</p>	High viability due to widespread mobile phone penetration and the need for accessible, timely agricultural advice to improve productivity and crop management.
21	Maize-based milk	<p>Explanation: Create a plant-based milk alternative from maize, utilizing its starches and proteins.</p> <p>Value proposition: Enjoy a nutritious, lactose-free, and vegan-friendly milk alternative made from maize, offering a delicious and healthy beverage that supports sustainable agriculture.</p> <p>Customer segment: Health-conscious consumers, lactose-intolerant individuals, and vegan markets.</p>	Moderate viability as there is a growing demand for lactose-free and vegan-friendly products, but consumer acceptance and competition with established plant-based milks (e.g., soy, almond) could be challenges.
22	Make a sor-	<p>Explanation: Create biodegradable plastics from sorghum's natural polymers, offering an eco-friendly alternative to conventional plastics.</p> <p>Value proposition: Choose eco-friendly sorghum-based plastics, offering a sustainable alternative to conventional plastics that helps reduce environmental impact and supports local farmers.</p> <p>Customer segment: Environmentally conscious consumers, packaging companies, and eco-friendly product manufacturers.</p>	Limited viability, as the technology to do this is still in its early stages, so cost effectiveness is not there, especially in developing markets.
23	Rice bran products	<p>Explanation: Utilize rice bran to create high-nutrient products like rice bran oil, which can be used in cooking.</p> <p>Value proposition: Enhance your health with nutrient-dense rice bran oil and supplements, offering you powerful benefits from a sustainable and locally sourced product.</p> <p>Customer segment: Health-conscious individuals, culinary enthusiasts, and natural product retailers.</p>	Moderate or limited viability, as changing consumer eating habits can be challenging.
24	Fruit leather production	<p>Explanation: Create healthy, natural fruit leathers from surplus fruits such as mangoes and pineapples.</p> <p>Value proposition: Enjoy nutritious and delicious fruit leathers made from surplus tropical fruits, providing you with a healthy, sustainable snack that's packed with natural flavor.</p> <p>Customer segment: Health-conscious consumers, snack food retailers, and parents seeking healthy snacks for children.</p>	Moderate viability, as there should be ready consumer acceptance of the product.

#	Idea	Explanation, value proposition, customer segment	Initial evaluation
25	Essential oil extraction	<p>Explanation: Extract essential oils from locally grown herbs and plants like lemongrass, eucalyptus, and lavender.</p> <p>Value proposition: Experience the benefits of locally sourced, high-quality essential oils for aromatherapy, skincare, and natural remedies, enhancing your well-being with nature's finest extracts.</p> <p>Customer segment: Aromatherapy practitioners, cosmetic companies, and health and wellness consumers.</p>	High viability with the growing global market for natural and organic products. Zambia's diverse plant life offers a strong raw material base, but initial investment in extraction technology could be a barrier.
26	Coconut waste products	<p>Explanation: Convert coconut husks and shells into value-added products like activated charcoal, natural fibers, and biofuels, maximizing the use of coconut by-products.</p> <p>Value proposition: Choose from a range of sustainable products made from coconut husks and shells, helping you support eco-friendly practices.</p> <p>Customer segment: Eco-conscious consumers, renewable energy companies, and manufacturers of natural products.</p>	Limited viability, as there is not likely a high demand for the product. Market demand for products like activated charcoal and biofuels needs to be thoroughly assessed.
27	Banana fiber textiles	<p>Explanation: Extract fibers from banana stems to produce textiles, ropes, and biodegradable packaging materials, offering a new use for banana plantation waste.</p> <p>Value proposition: Enjoy durable and biodegradable textiles and packaging made from banana fibers, offering you eco-friendly alternatives that reduce waste and promote sustainability.</p> <p>Customer segment: Sustainable fashion brands, eco-friendly packaging companies, and environmentally conscious consumers.</p>	Moderate or limited viability as sustainable textiles are gaining popularity, but the industry requires significant investment in technology and market development to compete with established textile materials.
28	Coffee pulp fertilizer	<p>Explanation: Transform coffee pulp, a by-product of coffee processing, into organic fertilizer or compost, enhancing soil fertility and reducing waste.</p> <p>Value proposition: Boost your garden's fertility with organic fertilizer made from coffee pulp, giving you a natural way to enrich your soil while reducing waste.</p> <p>Customer segment: Organic farmers, home gardeners, and environmentally conscious consumers.</p>	Moderate viability due to Kenya's significant coffee production and the need for sustainable agricultural practices. This product could appeal to eco-conscious farmers, but market education is necessary.
29	Cassa-va peel bioethanol	<p>Explanation: Produce bioethanol from cassava peels.</p> <p>Value proposition: Utilize renewable bioethanol made from cassava peels for your cooking and heating needs, providing you with an eco-friendly energy source that supports waste reduction.</p> <p>Customer segment: Rural households, renewable energy companies, and environmentally conscious consumers.</p>	Low viability as there are more cost-effective streams of waste to use in bioethanol.

6 SPECIALIZED ENTREPRENEURIAL SKILLS: EVALUATING AND DEVELOPING BUSINESS IDEAS

Intended Learning Outcomes 3: developing and evaluating business ideas

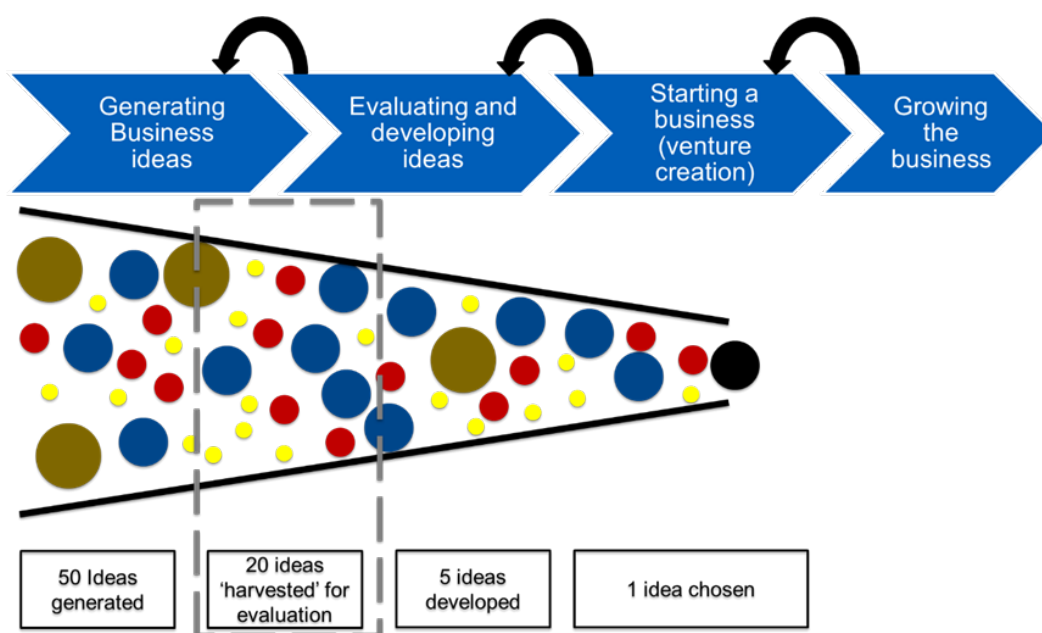
1. Evaluate the market potential of a business idea.
2. Iteratively develop promising business ideas so they become more robust.
3. Understand that a viable business idea involves much more than simply having a product or service that people would want to buy.
4. Understand that most business ideas will have to be rejected.
5. Compare and contrast different types of idea evaluation and development tools.

Coming up with ideas is only the start of the entrepreneurship process. These ideas must now be evaluated for viability, and further developed. This is a tiered approach, where we want to quickly narrow down the list of ideas, and then put some effort into developing the most promising. Exercises can be integrated into existing courses, but likely require more time than in the previous section; e.g., 30-45 minutes.

6.1 INITIAL EVALUATION AND SCREENING

The main point of evaluation and screening is to quickly narrow down the number of ideas with which we are dealing. Critically, we want students to do this narrowing with respect to their own skills, resources, and preferences; evaluation is about individual fit. An idea that is not suitable for one person may work well for another. Below, there are two main exercises we can take students through to work on culling ideas.

Figure 8: The idea funnel and initial evaluation



6.1.1 Screening questions

In using these questions, we want students to be rather ruthless. Starting a business is difficult, so if an idea seems to have obvious shortcomings, it should be abandoned. Common reasons for abandoning an idea include: clearly not having the required resources, not caring about the idea, seeing no profit potential, not knowing anything about the specific part of the industry.

6.1.1.1 What would it take to develop an idea into a business?

Here, we want students to start thinking about how much money and how many resources it would take to make an idea into a business, what types of team members they would need, and what knowledge they would need. To an extent, team members can substitute for knowledge

and resource shortcomings, as they can bring those things with them. Consider an idea we generated in the previous section: 'Stockpile food for the dry season.' Making this into a business might require:

- Building or renting a warehouse
- Having sufficient capital to buy a significant amount of food and hold it for six months
- Hiring security for the warehouse
- Arranging transportation
- Having connections with seller

6.1.1.2 What do you currently have? And, what can you get?

Coupled with this, students should consider what they currently have. For instance:

- What do you know how to do really well? E.g., understand raising chickens very well.
- What resources do you currently have access to? E.g., access to a small amount of capital, and a workspace
- How much time do you have available for the idea? E.g., this would be a full time job

Just because someone lacks necessary resources or knowledge does not render the idea impractical. Indeed, students can leverage their social connections to make up for these shortcomings, or they can acquire them by other means. They might thus ask:

- What key social contacts do you have? How could these people be helpful in starting a business? E.g., what is their expertise and what resources do they have? Knowing someone who is an expert in the restaurant sector, probably makes ideas in that space more viable for someone
- What can you learn about quickly? E.g., do you think you can learn about import regulations quickly?

6.1.1.3 Fit between what is needed, and what you have or can get

Ultimately, there should be a rough match between what is needed to turn the idea into a business, and what the student/team either has, or can get. Importantly though, students do not need to be 'exact' at this stage. They simply need to make first-order approximations. Obvious mismatches should be discarded, while additional information can be collected on other more marginal ideas.

6.1.1.4 Additional questions

Finally, some assorted questions to consider:

- How profitable could an idea be? Something that will struggle to make money should be evaluated differently than something with a huge upside
- How much social or environmental value can an idea create? If this is something you care about, then it should be considered
- How passionate about an idea are you? Entrepreneurship is hard. Pick something you like.

6.1.1.5 Exercise and assignment questions

Teaching Tool 17: In class exercise for preliminary evaluation

17

Duration: 45 minutes

Intended learning outcome: Preliminarily assess the viability of business ideas

Classes in which these exercises can be used: This is a longer duration exercise, and likely cannot simply be 'inserted' into an existing session. It works best in either a group of sessions specifically dedicated to entrepreneurship, or as part of an introduction to entrepreneurship. Ideally, this exercise should be done after students have done the above listed idea generation exercises.

Setup:

1. Have the students work in groups of 2-3 people. Ask each group to supply enough ideas so that you will have 15-20 total. If students have not done the idea generation exercises, give them a list, such as from section 5 on page 39
2. Write these ideas on the board.
3. Have students run through all of the listed ideas and preliminarily evaluate them on a scale of 1-10, with 10 being most promising in terms of viability.
4. Have students write their assessment of the idea beside where it is written on the board; i.e., their score on the 1-10 scale
5. Spend the last 10 minutes summarizing for the class the different rating outcomes. Try to involve the class, asking why ideas seemed to be rated highly or lowly.
6. Highlight what seem to be the top five ideas.

18

Duration: 10-15 minutes

Assessment of student's ability to: Preliminarily assess the viability of business ideas

Setup:

Provide students with brief descriptions of 3-5 different ideas, such as those contained in section 5 on page 39. The ideas should vary in their viability, and also be understandable to the students based on their current position in the program. For instance, the following ideas would make a good set:

- Start medium-sized farm: Produce maize at scale and sell into large urban centers
- Mobile phone-based market platform for selling: Create a mobile app to connect farmers directly with buyers, reducing middlemen and ensuring fair prices.
- Solar-powered irrigation: Design solar-powered irrigation solutions to reduce dependency on rainwater and mitigate the effects of droughts.
- Mango seed flour: Process mango seeds into flour, which can be used as a gluten-free alternative in baking and cooking, adding value to a typically discarded resource.
- Machinery leasing: Start a business leasing farm machinery and equipment to smallholder farmers who cannot afford to buy them.

Questions

Several of the questions may be used together

1. Based on the provided ideas, please detail the resources that would be necessary to make this idea work.
2. To properly assess each idea, what additional information would you want to know?
3. Please compare the listed ideas and prepare an initial ranking of them. Justify your ranking.
4. Of the listed ideas, which ones seem non-viable and thus should be discarded. Explain your answer.
5. Of the listed ideas, which ones seem viable and thus should be discarded. Explain your answer.

6.1.2 What is the value proposition, and who is the customer?

The next part of initial evaluation is better explicating two key aspects of any business model: the value proposition, and the target customer segments. These two aspects must be considered together; value proposition is always with reference to a specific customer segment. If either cannot be well explicated, then the idea should probably be dropped.

6.1.2.1 Value proposition

A value proposition is a fundamental term in entrepreneurship. Some examples are shown in 5. A value proposition succinctly articulates the unique value that a company's products or services provide to its customers. It explains why customers would choose a business's offerings, highlighting the specific benefits the products or services deliver. Essentially, a value proposition answers the critical questions: "What are we doing for the customer?" In some cases, when entrepreneurship focuses on innovation, we might want to answer the further question of "how is your business unique?" but given that most students will pursue imitative ideas, this is less important.

Foremost, the value proposition begins by understanding **customer needs** and crafting **product or service offerings** that address these. For innovative venture ideas, this frequently means understanding the problems or pain points that people experience and would like to have a solution to. A product that can address these is beneficial. For ideas that are not innovative, but instead are similar to existing ones, the startup must ensure it meets the standard expectations of the customers effectively. For example, if starting a new restaurant in a market already saturated with similar outlets, the focus is on delivering the same quality, taste, and convenience that customers expect. If needs are unmet, the idea will not work. Thus, when working through ideas, if a specific customer need cannot be identified, then the idea should be dropped.

A good value proposition should also understand that **cost** is heavily interrelated with customer needs. The importance of the need you are addressing, and the relative cost of similar products in the market set a boundary of how much a product/service can cost. Generally, an imitative startup might emphasize cost-effectiveness as part of its value proposition.

Moreover, a value proposition may emphasize **customer service and experience**. Although the product or service may be imitative, the value proposition can include a commitment to providing excellent customer service and a positive customer experience. This involves friendly staff, clean facilities, and a pleasant atmosphere.

Beyond functional benefits, a compelling value proposition also addresses the **emotional and psychological** impact of your product or service. This includes how your offering makes customers feel, the status or identity it conveys, and the emotional relief or satisfaction it provides. For example, a luxury brand might emphasize the prestige and exclusivity associated with its products, while an eco-friendly brand might focus on the peace of mind that comes from making environmentally responsible choices.

Though not necessary at this stage, we eventually want to convey a value proposition to customers. In this case, a well-crafted value proposition is **concise, clear, and easy to understand**. It avoids jargon and complex language, instead using straightforward terms that resonate with the target audience. The goal is to communicate the core value in a way that can be quickly grasped and remembered by potential customers. Ideally, a value proposition should be compelling enough to capture attention in just a few seconds.

6.1.2.2 Customer segments

Customer segments are core to any business model. They are the distinct groups of people or organizations a business caters to. Indeed, markets are not homogeneous, but rather are full of segments that have their own unique characteristics, needs, and behaviours. At this stage, for an idea to pass initial screening, students should be able to identify a potential segment. They may then go on to further develop their profile of that segment as they develop the idea. Indeed, by identifying and understanding their target segments, students can help their businesses tailor their offerings and marketing efforts to better meet the specific needs of a segment.

Customer segments can vary widely based on various factors such as demographics, behaviours, needs, and preferences. Some basic characteristics to consider:

- Demographic: Age, gender, income, education, occupation, marital status, and family size.
- Geographic: Location, climate, urban or rural setting, and regional preferences.
- Psychographic: Lifestyle, values, attitudes, interests, and personality traits.
- Behavioural: Purchase behaviour, usage frequency, brand loyalty, and benefits sought.
- Firmographic: For B2B segments, this includes industry, company size, location, and revenue.

Again, students do not have to robustly identify and develop customer segments at this stage. We just want their initial understanding. If they cannot identify a viable customer segment for which the value proposition works, the idea should be discarded. Nonetheless, below are expanded details of how to approach customer segments.

Here, identifying customer segments involves market research and data analysis. Students can collect data through surveys, interviews, and focus groups. They can also analyze customer behaviour through advanced analytics and tools like customer relationship management (CRM) systems and data mining techniques, but these are rather advanced. The bottom line: students need to gather information, otherwise they are just guessing.

Once a customer segment is identified, students can create detailed customer profiles for that segment. There may be multiple segments. These profiles include demographic descriptions, explanations of preferences and needs, an overview of standard buying behaviour, as well as customer motivations. These profiles help students understand their target audience, improving their ability to develop their product offerings and marketing. For instance, traditional agricultural products such as maize flour may be well suited for older customer segments, while more novel offerings – such as milk made from maize – may find better reception with younger audiences. Additionally, different segments may prefer different sales and distribution channels. Older segments may prefer traditional shops, while younger segments may be open to a wider array of distribution options.

6.1.2.3 Exercise and assignment questions

This exercise generally works best if it comes after the initial screening question.

Teaching Tool 19: Exercises for developing a value proposition and defining customer segments

19

Duration: 15-20 minutes

Assessment of student's ability to: Preliminarily assess the viability of business ideas

Intended learning outcome: Develop an initial value proposition and customer segment, using them to assess an idea's potential.

Classes in which these exercises can be done: This exercise likely cannot be inserted into an existing session, as students would need to first be taught what a value proposition and customer segment is. Thus, this likely fits best in a course or set of classes focused on entrepreneurship.

Setup:

1. Have the students work in groups of 2-3 people. Each group member should supply 1-2 ideas each. If students have not done the idea generation exercises though, give them a list, such as from section 5.
2. Have the students share the ideas with each other.
3. Have them develop a value proposition and define a customer segment for each of the ideas.
4. Next, combine groups with each other; i.e., put groups together.
5. Get each group to explain an idea, its value proposition, and customer segment to the other group.
6. The other group then asks questions and provides feedback.

20

Duration: 10-15 minutes

Assessment of student's ability to: Preliminarily assess the viability of business ideas

Intended learning outcome: Develop an initial value proposition and customer segment, using them to assess an idea's potential.

Setup:

Provide students with brief descriptions of 3-5 different ideas, such as those contained in section 5 on page 39. The ideas should vary in their viability, and also be understandable to the students based on their current position in the program. For instance, the following ideas would make a good set:

- Start medium-sized farm: Produce maize at scale and sell into large urban centers.
- Mobile phone-based market platform for selling: Create a mobile app to connect farmers directly with buyers, reducing middlemen and ensuring fair prices.
- Solar-powered irrigation: Design solar-powered irrigation solutions to reduce dependency on rainwater and mitigate the effects of droughts.
- Mango seed flour: Process mango seeds into flour, which can be used as a gluten-free alternative in baking and cooking, adding value to a typically discarded resource.
- Machinery leasing: Start a business leasing farm machinery and equipment to smallholder farmers who cannot afford to buy them.

Questions:

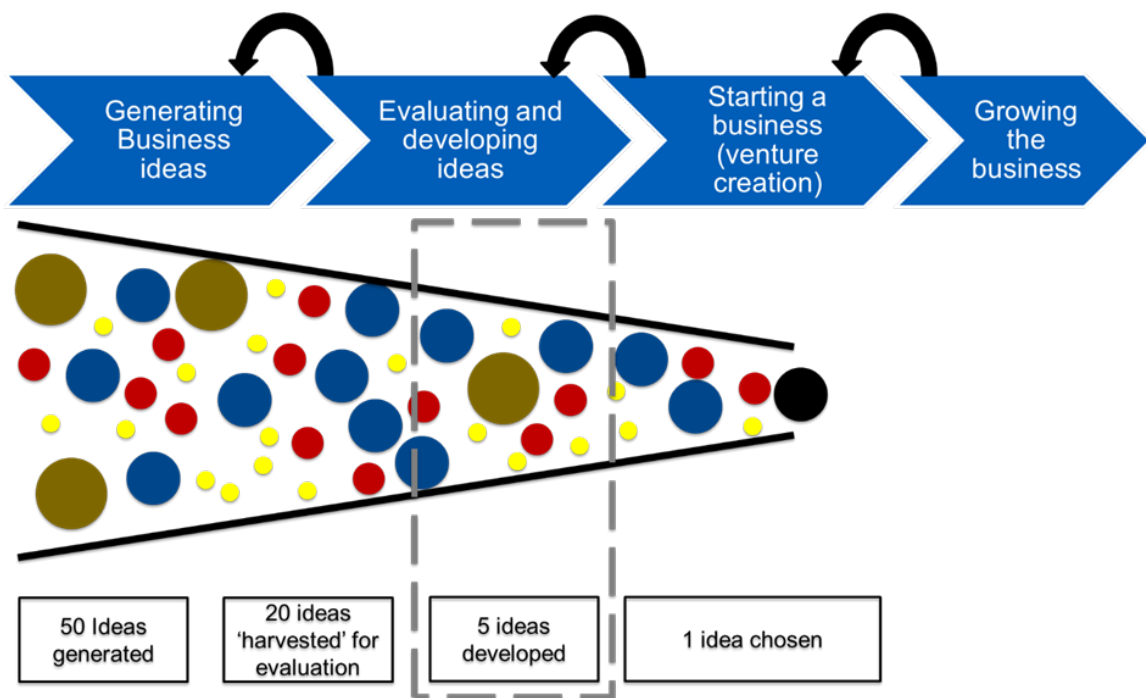
Several of the questions may be used together

1. For each idea, develop a value proposition.
2. Assess this value proposition; are people likely to find value in it?
3. For each idea, define its customer segment.
4. Is this customer segment sufficiently large in the local market to make the idea viable?
5. Based on the matching of value propositions with customer segments, rank the ideas from most to least promising. Explain your answer.

6.2 INITIAL DEVELOPMENT: BUSINESS MODEL CANVAS

Once we have conducted the initial screening, we move down the idea funnel in Figure 9. We now want to more rigorously develop the idea. Though people often think this means creating a business plan, doing so is very time consuming, and there are better tools to use at this stage. In fact, and as explained in section 6.3, business plans will not be used in most programs, due to how time consuming they are. There are also questions about their usefulness.

Figure 9: The idea funnel and developing business ideas



In contrast, the Business Model Canvas (BMC) is a proven tool that can help quickly organize the different elements of a business. As a starting point, using the BMC forces students to actively think about the different parts of a business, possibly identifying things they have overlooked. Moreover, laying out all the elements can underscore when a misalignment occurs – e.g., when cost structure does not fit with target customers. Alignment is discussed below. Here are allable versions of the BMC that can be used with students:

Example 1 (picture)

Example 2 (Miro)

Example 3 (PowerPoint)

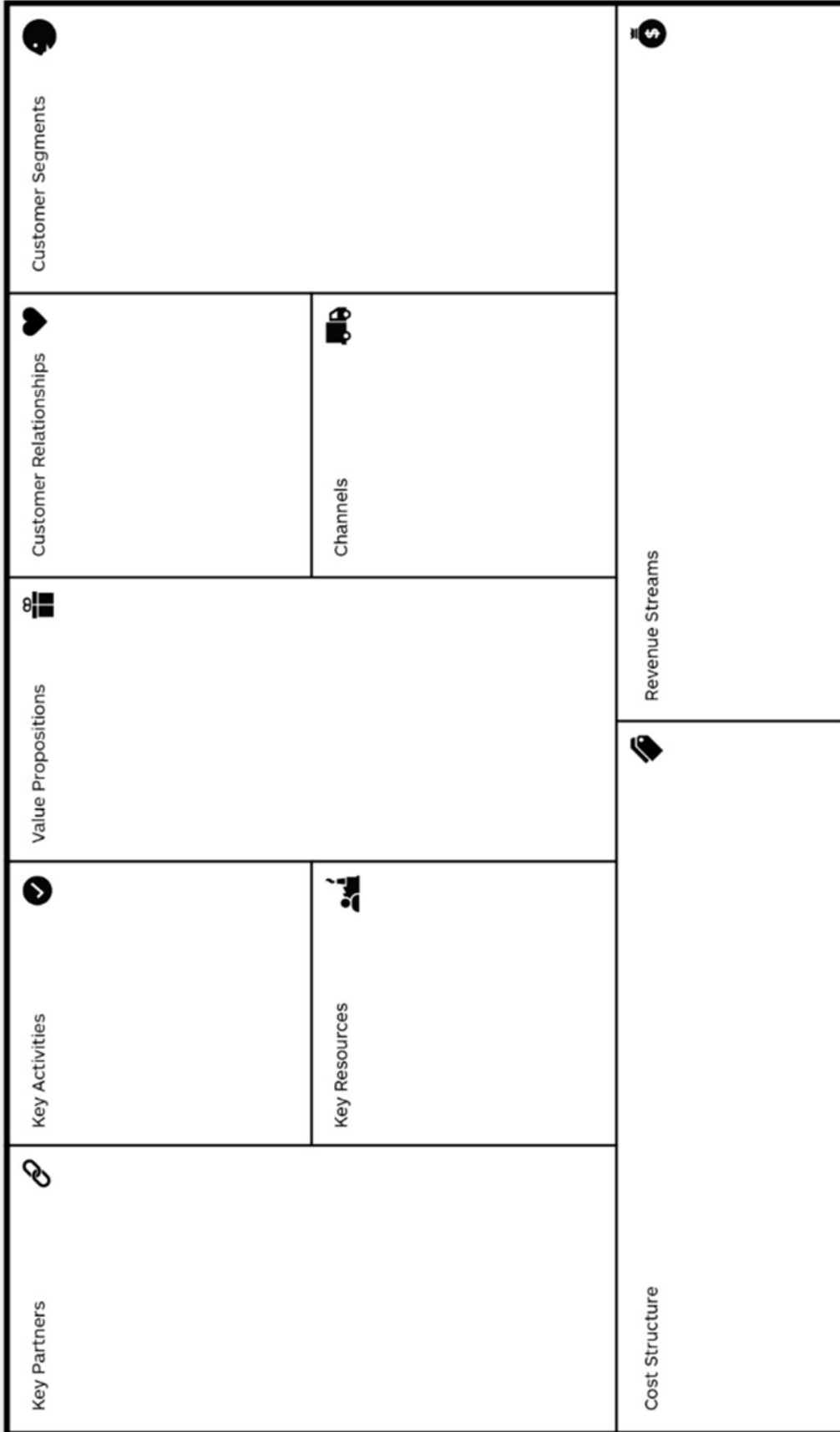
The Business Model Canvas

Designed for:

Designed by:

Date:

Version:



This work is licensed under the Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/4.0/> or send a letter to Creative Commons, 171 Second Street, Suite 302, San Francisco, California, 94105, USA.

DESIGNED BY: STRATEGYZER AG

The makers of Business Model Generation and Strategyzer



6.2.1 Components

The first part of using a BMC is filling in the different elements. These will have to be explained to students. We have already discussed value propositions and customer segments at length above in sections 6.1.2.1 and 6.1.2.2.

6.2.1.1 Key Activities

Key Activities describe the most important actions a company must take to operate successfully. These activities are critical for creating and delivering the value proposition, reaching markets, maintaining customer relationships, and ultimately generating revenue. Key activities vary depending on the business model but can include production, marketing, raw material sourcing, connecting with purchasers, navigating bad infrastructure, or research and development. By identifying key activities, students can understand where they ought to focus their efforts, as these key activities are central to creating value.

As an example, key activities for a farming venture includes planting, weeding, pest management, harvesting, and post-harvest processing. Distribution is another critical activity, as an entrepreneur must get their crop to markets. For ventures processing agricultural products, key activities involve sourcing high-quality raw materials from farmers or suppliers, and then the processing techniques such as cleaning, sorting, drying, and packaging.

6.2.1.2 Key Resources

Key resources are what helps a business conduct these key activities and ultimately deliver the value proposition. These resources can be physical, intellectual, human, or financial. For farming ventures, key resources include basic physical assets such as land, seeds, and simple farming tools. Human resources are what students bring to the table, such as their knowledge. Financial resources enable students to purchase inputs and cover operational costs. Interwoven with this, access to water is an absolutely key resource. Without it, farming is impossible. This can be done through rainfall, gravity-fed systems, or irrigation of some sort.

For processing ventures, key resources include physical assets such as processing equipment (grinders, dryers, packaging machines), facilities for processing and storage, and reliable access to electricity and water. Moreover, a consistent supply of high-quality raw inputs is necessary; without this, there is nothing to process. Skilled workers may also be needed to operate and maintain machinery. All of these resources of course require money.

6.2.1.3 Cost Structure

The cost structure outlines all the expenses a business encounters. It includes both fixed costs and variable costs. Fixed costs remain constant regardless of production levels, and include expenses such as salaries, rent, and infrastructure. Variable costs fluctuate with production volume, and include expenses such as raw materials, utilities, and labour. Higher volumes equal higher variable costs, though these should be offset by higher revenues. Understanding the cost structure is crucial for managing finances and identifying opportunities for cost-savings. As an example, the cost structure of farming ventures includes both fixed and variable costs. Fixed costs include land, machinery, and storage facilities. Variable costs include seeds, fertilizers, pesticides, water, labour, as well as transportation and fuel.

6.2.1.4 Revenue Streams

Revenue Streams are how a venture makes money. The most common revenue stream is selling a product or service, such as a farming venture selling the maize it produces. For a processing venture, the primary revenue stream could be selling enriched maize flour. Here, the revenue stream for the farming venture would actually be a cost for the processing venture. Similarly, an agriculture input venture would make money selling seeds and fertilizers, which are costs for the farming venture. More complex revenue streams include asset sales, usage fees, subscription fees, and licensing. Students are unlikely to encounter these other streams very often. One example might be charging subscription fees for farmers to receive advice via cell phone.

6.2.1.5 Key Partnerships

Key Partnerships outline the network of suppliers, alliances, and other partners that help a business model function. Partnerships can be formed for many reasons. Most notably though, they help optimize operations, reduce risks, acquire resources, or access new markets. There are different types of partnerships, such as strategic alliances between non-competitors, co-opetition (strategic partnerships between competitors), joint ventures, and buyer-supplier relationships.

One example students could encounter is forming strategic partnerships. An agricultural venture might form a partnership with local cooperatives. This can enhance distribution and support networks. Another option is forming a partnership with governmental agencies and NGOs, which can help secure funding, training, and infrastructural support. Yet another option is partnerships with research institutions, which could make sense if a venture is attempting to be innovative. Finally, partnerships with suppliers can ensure a steady stream of critical inputs.

6.2.1.6 Channels

Channels describe how a company communicates with and reaches its customer segments. Channels in a farming venture include a mix of traditional and modern methods. More modern methods might rely on technology such as apps and SMS services. By contrast, traditional methods might include selling to market ventures. More complex channels may be needed when selling internationally.

6.2.1.7 Customer Relationships

A venture generally wants to establish ongoing relationships with its customers. These relationships can range from personal to automated and have a significant impact on customer satisfaction and loyalty. A personal approach may involve frequent phone calls with key customers, while an automated approach might involve electronic marketing material sent directly by SMS or app. The choice of customer relationship strategy should align with the overall business model and value proposition. Generally, if there are only a small number of customers, a personal approach is preferred.

Building strong customer relationships is essential for all agricultural ventures. The nature of these relationships will vary based on what the venture is doing. Selling locally through established markets will look very different from selling to large urban retailers or on international markets. Personal assistance through field agents who provide on-ground support and training to farmers can be very effective. Community-based relationships are also crucial, where farmers are encouraged to form cooperatives or groups to share resources and knowledge. Additionally, engaging with customers through social media and local radio programs helps build trust and loyalty. Offering loyalty programs or discounts for repeat customers can also strengthen relationships and encourage long-term engagement.

6.2.2 Teaching the BMC: A focus on alignment

To help students understand how to assess alignment in a Business Model Canvas (BMC), start by explaining why alignment is important. Alignment ensures that each component supports and reinforces the others, creating a robust business model. Misalignments can lead to inefficiencies, increased costs, and missed opportunities, undermining the venture's overall success. As a generic example, consider that a premium product cannot be sold through the same sales channels as a low-cost product. Moreover, the cost structure behind a low-cost product will not support a premium product.

From there, break down each of the nine elements and discuss their roles and relationships. Use practical examples to illustrate these points. The best place to start is by examining the alignment between the Value Proposition and Customer Segment. The value offered must clearly address the needs and preferences of the targeted customer segments. For instance, high quality coffee beans would have to meet the demands of international specialty coffee markets, while the price, taste, and availability of staple grains (e.g., maize) would have to meet the demands of local markets. In contrast, selling specialty coffees on local markets probably will not work, nor will selling staple grains to specialty shops.

If there is a mismatch, such as producing a type of coffee that does not appeal to specialty coffee markets, or producing a type of stable grain not normally consumed locally, it indicates a misalignment. To fix the misalignment, students must consider the preferences of their chosen target market. For specialty coffee markets, this means identifying the specific flavor profiles, quality standards, and Fairtrade standards that these consumers value. Similarly, for local staple grains, students would want to understand the types of grains that are traditionally consumed.

Once the customer segment and value proposition align, students should consider the customer relationships and channels that will be used. They have a value proposition that can work for the target segment, but they still need to reach that segment (via the correct Channels) and get those customers to buy the product/service (Customer Relationships). For staple grains, utilizing local distribution networks and partnerships with government nutrition programs could be viable options. Here, collaborating with government programs focused on food security and nutrition can help distribute grains to vulnerable communities, schools, and health centers. This is a good option should students want to have a social benefit. Building strong customer relationships through the offering of credit, and general social engagement is also vital. For specialty coffee, an aligned strategy could be partnering with a franchise of high-end cafes.

Next, students should analyze the Revenue Streams and Cost Structures to ensure financial sustainability. One of the key challenges here is that students often tend to be overly optimistic. At this point in the idea development cycle, that is acceptable, but as ideas get more refined, they do need to critically analyze their assumptions.

For now, the predicted revenue streams must be reasonable for the target customer segment; e.g., do not assume premium prices from cost-conscious consumers. This revenue should adequately cover production, processing, and distribution costs, while also allowing free cash flow either for profits or for reinvestment in growth. If revenue streams are not sufficient, this misalignment threatens the venture's viability. To rectify this misalignment, new sources of revenue can be pursued, or costs can be cut.

For staple grains, revenue streams might include direct sales to local households, bulk sales to small retailers, and contracts with government nutrition programs. These sources of income need to cover the costs of purchasing seeds, farming equipment, fertilizers, and labour. Additionally, processing costs, including milling and packaging, and transportation to markets must be accounted for. For specialty coffee, the revenue streams can come from direct-to-consumer sales via an e-commerce platform, bulk sales to high-end cafes, and gourmet food retailers. The revenue must adequately cover the costs associated with sourcing high-quality coffee beans, which might include Fairtrade premiums, and the costs of roasting, packaging, and branding. Distribution costs, particularly for international export, can be significant. To address any revenue shortfalls, students could explore strategies like premium pricing for exclusive coffee varieties, building brand loyalty through subscription services, or reducing costs by improving operational efficiencies. They might also consider partnerships with international distributors or online marketplaces to expand reach and increase sales volume.

Finally, students should look at how well Key Resources, Key Activities, and Key Partnerships integrate and support the overall business objectives. For resources, alignment means that the equipment, labour, financial capital, and other resources are adequate for performing the key activities. Additionally, partnerships should complement and enhance these activities, especially by overcoming resource deficiencies. Overall, alignment ensures that all these elements work together harmoniously to achieve efficiency, sustainability, and growth.

For staple grains, resources such as fertile farmland, high-quality seeds, farming equipment, skilled labour, and adequate storage facilities must be sufficient to support the primary activities of soil preparation, planting, crop management, harvesting, and post-harvest processing. Effective storage management to prevent spoilage and robust marketing strategies to reach local households, retailers, and government programs are crucial activities. Key Partnerships with local cooperatives enhance resource sharing and knowledge transfer, while collaborations with suppliers ensure a steady flow of necessary inputs.

For a specialty coffee venture targeting international markets, key resources include coffee plantations, high-quality coffee seedlings, harvesting and processing equipment, roasting and packaging facilities, and skilled labour. These must support the primary activities of sourcing and cultivating high-quality coffee beans, processing them through drying, roasting, and packaging, and conducting rigorous quality control. Key partnerships with local farmers can ensure a consistent supply of quality beans.

6.2.3 Example business model canvas: Selling staple grains on the local market

<p><u>Key partners</u></p> <ul style="list-style-type: none"> • Local cooperatives for resource sharing and knowledge transfer • Suppliers of seeds, fertilizers, and equipment • Local governments and NGOs for funding and training • Local retailers and market vendors 	<p><u>Key Activities</u></p> <ul style="list-style-type: none"> • Soil preparation, planting, crop management • Harvesting and post-harvest processing • Storage • Marketing and sales • Training and continuous improvement 	<p><u>Value Proposition</u></p> <p>Core offering: Staple grains such as maize</p> <ul style="list-style-type: none"> • Produce high quality, affordable, maize at scale for local markets 	<p><u>Customer Relationships</u></p> <ul style="list-style-type: none"> • Community outreach • Offer credit • Partake in normal social gatherings 	<p><u>Customer segments</u></p> <ul style="list-style-type: none"> • Local households • Small retailers • Government nutrition programs
<p><u>Cost structure</u></p> <ul style="list-style-type: none"> • Costs of seeds, fertilizers, and farming equipment • Labour costs for planting, harvesting, and processing • Storage and transportation costs • Marketing and sales expenses 	<p><u>Key resources</u></p> <ul style="list-style-type: none"> • Farmland and high-quality seeds • Farming equipment and storage facilities • Skilled labor and financial resources • Reliable access to water and transportation infrastructure 		<p><u>Channels</u></p> <ul style="list-style-type: none"> • Local produce markets • Local wholesale markets 	
			<p><u>Revenue streams</u></p> <ul style="list-style-type: none"> • Direct sales to households and retailers • Bulk sales to government programs 	

6.2.4 Example business model canvas: Creating an artisanal coffee brand

<p><u>Key partners</u></p> <ul style="list-style-type: none"> • Local farmers for a consistent supply of beans • Fair trade organizations for ethical sourcing • Specialty coffee roasters and processors • International distributors and high-end cafes • Marketing agencies and brand ambassadors 	<p><u>Key Activities</u></p> <ul style="list-style-type: none"> • Sourcing and cultivating high-quality coffee beans • Processing, drying, roasting, and packaging beans • Quality control • Marketing and sales • Maintaining sustainable and ethical farming practices 	<p><u>Value Proposition</u></p> <p>Core offering: Premium roasted coffee</p> <ul style="list-style-type: none"> • Supply a premium upscale product that highlights the unique flavors and qualities of local specialty beans 	<p><u>Customer Relationships</u></p> <ul style="list-style-type: none"> • Personalized customer service (online chat, email support) • Engagement through social media and content marketing • Loyalty programs and subscription services 	<p><u>Customer segments</u></p> <ul style="list-style-type: none"> • International specialty coffee markets • High-end cafes • Gourmet food retailers
	<p><u>Key resources</u></p> <ul style="list-style-type: none"> • Coffee plantations and high-quality seedlings • Harvesting and processing equipment • Roasting and packaging facilities • Skilled labor and financial resources • Brand and intellectual property 		<p><u>Channels</u></p> <ul style="list-style-type: none"> • Direct-to-consumer e-commerce platform • Partnerships with high-end cafes • Distributors to gourmet food retailers • Trade shows and events 	
<p><u>Cost structure</u></p> <ul style="list-style-type: none"> • Costs of coffee seedlings and farming operations • Processing, roasting, and packaging expenses • Quality control and certification costs • Distribution and export costs • Marketing and sales expenses • Investments in sustainable practices and fair trade compliance 			<p><u>Revenue streams</u></p> <ul style="list-style-type: none"> • Direct sales via e-commerce • Wholesale to cafes and retailers • Subscription services for regular shipments • Private label partnerships 	

6.2.5 Exercise and assignment questions

21

Teaching Tool 21: Exercises for developing an aligned BMC

Duration: 20-30 minutes

Intended learning outcome: Develop an initial business model canvas, analyzing its alignment.

Classes in which these exercises can be done: This exercise likely cannot be inserted into an existing session, as students would need to first be taught what a BMC is. Thus, this likely fits best in a course or set of classes focused on entrepreneurship.

Setup:

1. Offer students a business idea, such as one contained in section 5 on page 39.
2. Next, ask them what the value proposition and target customer segment is. If either component is not well defined, keep inquiring into it until it is clear.
3. If the value proposition and customer segment are misaligned, ask students how we could correct this.
4. Ask what the proper channels and customer relationships would be. Iterate until aligned.
5. Ask someone to share their thoughts on the revenue streams and cost structure. Doing a rough estimate (qualitatively) about if the model can break even. If it does not, iterate until it does and is thus aligned.
6. Finally, develop the key partners, activities, and resources.

22

Teaching Tool 22: Potential assignment or exam questions for developing an aligned BMC

Duration: 20-30 minutes

Assessment of student's ability to: Develop an aligned BMC.

Set-up:

Provide students with brief descriptions of one business ideas, such as those contained in section 5 on page 39. Start medium-sized farm: Produce maize at scale and sell into large urban centers.

Question

1. Develop a business model canvas for this idea. Explain why there is effective alignment.

6.3 OTHER DEVELOPMENT APPROACHES: LEAN STARTUP, BUSINESS PLANS AND FINANCIAL MODELS

Another common development tool is the lean startup canvas – shown in Figure 10. This has similarities to the above-mentioned business model canvas, though is focused more on the actual idea and why people would like it. For this reason, it includes a focus on the problem people face and the solution. Overall, it is more market-focused and applicable to innovative ideas. As most students will likely be imitating existing business models, this is therefore not the most useful tool. The business model canvas does a better job of having students think about all the components underpinning a business idea, rather than the idea itself.

Business plans are frequently seen as a core part of entrepreneurship education {Schultz, 2022 #6256}. However, getting students to do these effectively does require a large amount of class time. As such, business plans likely will not work for most of the entrepreneurship integration you will be doing, unless you will have two or more dedicated courses on entrepreneurship. If this is the case, there are plenty of established resources for how to construct a business plan. Students would need to be taught this first, before actually doing it. A business plan can be seen as the first step of actually starting a business.

Similarly, financial modelling is an important part of idea development. While the listing of cost structure and revenue streams in a business model canvas helps us get a first idea of profit potential, these ideas are only initial approximations. Financial modelling, when based on appropriate market research, helps students understand the picture in much more detail, such as what our margins might be, and what our potential profitability might be. To teach this type of modelling though, students likely need a standalone course.

Figure 10: The lean startup canvas



7 SPECIALIZED ENTREPRENEURIAL SKILLS: STARTING A BUSINESS

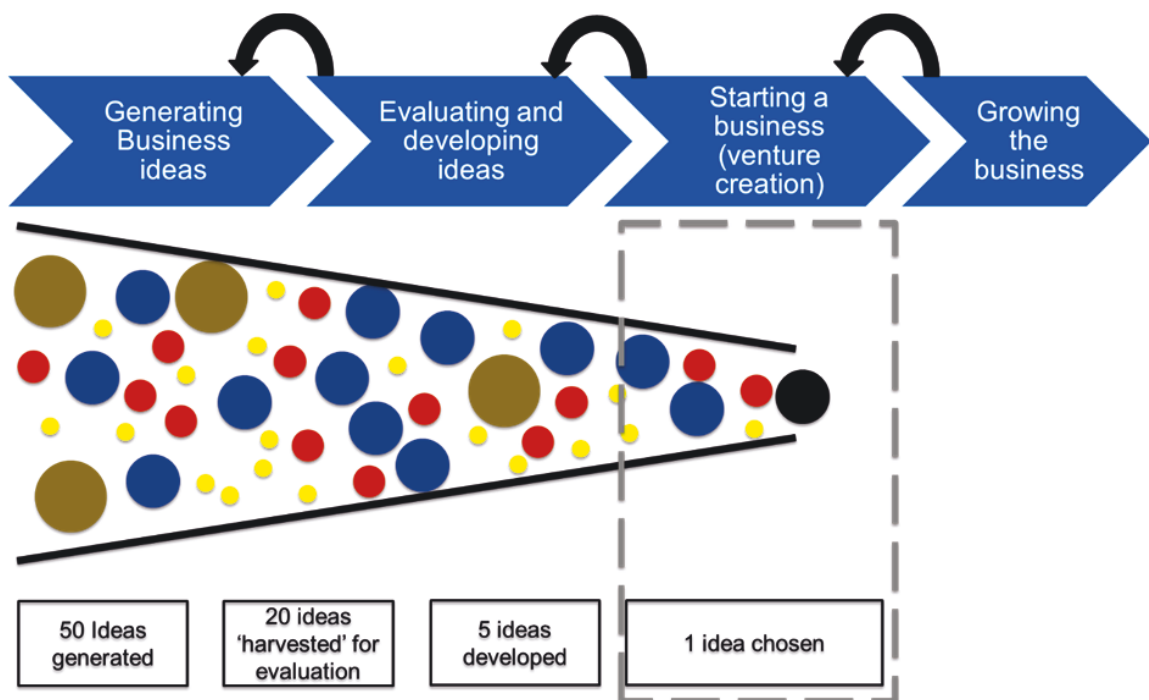
Intended Learning Outcomes 4: Starting a business

1. View venture creation as a continuation of idea development
2. Analyze the business model surrounding your idea, identifying the key activities that must be undertaken
3. Create plans to undertake the needed sets of activities
4. Understand that even after one starts a business, the business model may have to change, or the idea may have to be abandoned

Ultimately, we want students to start a business. Doing this will build on the work they have previously done, but it will also involve some new steps. Notably, prior work – including idea generation, idea evaluation, and development – was largely ‘paper’ work. Students were not yet putting plans into action. Now though, students must work in the real world.

Though starting a business is extremely important, this section is short. This is because you likely will not have substantial space in your curricula for integrating this subject. Moreover, students who get to the point of wanting to start a business arguably have the motivation to follow through and can figure out the details on their own. Put another way, we are better off spending our curriculum space on getting students motivated to be entrepreneurs and coming up with ideas.

Figure 11: The idea funnel and starting a business



Once a good idea has been developed, starting a business can be thought of as a series of discrete tasks focused on putting plans into action. For instance, while developing an idea, students would have put thought into how they will get financing. Now though, they have to actually secure that money. That might involve going to friends, family, or outside investors, as well as drawing on one's own savings. If there is a challenge actually securing the money, the business idea may need to change.

Moreover, starting a business might involve putting together a team, or growing a team. Students likely identified some shortcomings in their own skills. For instance, they may have great technical skills, but lack business skills. Recruiting others to fill these gaps will be important. This might involve hiring them as employees, or having them join as owners of the business. While putting together this team it is critical to ensure roles, responsibilities, equity breakdowns, and other compensation are clear. Moreover, putting a concerted effort into ensuring good team dynamics will be important. Indeed, a main reason for business failure is problems with team dynamics (Amankwah-Amoah, Boso, & Antwi-Agyei, 2018; Cope, 2011).

Additionally, starting a business will involve finding a suitable workspace – for production and/or sales – as well as buying inputs, processing equipment, and any other needed resources. Care should of course be put into saving money at this point; e.g., second-hand equipment if it is suitable. Students will also have to decide on a legal structure for the startup; sole proprietorship, partnership, or separate legal entity.

Furthermore, if the business relies on key **partnerships**, these partnerships need to be solidified. For instance, if working with agricultural cooperatives, these cooperatives need to be approached and agree to be part of the business idea.

With these steps completed, starting the company's **key activities** is critical. After all, this is what a business does to make money. This might mean starting production of maize flour, starting roasting coffee, purchasing waste materials and processing them into heating briquettes, or even just purchasing vegetables and transporting them to the market. Whatever the activities are though, they need to be executed effectively. As part of this, starting **marketing** and ultimately making **sales** will be important.

Finally, students will benefit from seeing venture creation as a continuation of a learning process. This is not merely putting a plan into action. Rather, new things will be learned during this process. As such, the idea may have to change. In fact, the idea *should* change. All good business ideas are malleable and can be made better.

8 SPECIALIZED ENTREPRENEURIAL SKILLS: GROWING A BUSINESS

Intended Learning Outcomes 5: Growing a business

1. Understand different approaches to growth
2. Analyze a business to understand its growth potential
3. Apply idea development tools to a growth context
4. View growth as optional, as depending on the entrepreneur's preferences

You likely will not spend a large amount of time discussing growth with students, Nonetheless, a brief overview may be helpful. In presenting this topic to students, we want to emphasize that growth is not imperative. Indeed, because it is risky, many entrepreneurs might prefer simply to continue doing what they already do.

8.1 APPROACHES TO GROWTH

Organic growth involves expanding a company's operations through internal resources and capabilities. This is the most likely approach to growth for students. This mode focuses on increasing sales, improving productivity, and enhancing product offerings without relying on external financing or acquisitions. For example, an agricultural cooperative could achieve organic growth by processing its raw produce. Instead of selling raw maize, the cooperative could invest in milling equipment to produce and package maize flour, thereby capturing a larger portion of the value chain and increasing its revenue. Similarly, a small-scale honey producer could enhance their growth by improving their processing techniques to produce higher-quality, branded honey. They could also expand their product line to include beeswax products like candles and balms, thus diversifying their offerings and attracting a broader customer base.

Growth through **acquisitions and mergers** involves purchasing or merging with other companies. This enables a company to quickly increase market share, diversify product lines, and achieve economies of scale. Here, an agribusiness might acquire a smaller food processing company specialized in drying and packaging fruits, allowing the agribusiness to diversify its product offerings and enter new markets. A tea plantation could merge with a packaging and distribution company. This vertical integration can reduce costs, improve product quality, and enhance market reach, driving substantial growth.

Forming **strategic partnerships and alliances** with other businesses can drive growth by finding complementary strengths and objectives. For example, a coffee producer could partner with a local bakery chain to supply them with high-quality coffee beans. From the coffee producer's standpoint, this would create a steady demand for their product, while for the bakery chain, this would allow cost savings and assure quality. A vegetable farming collective might form an alliance with a local supermarket chain to supply fresh produce directly. These collaborations can open new distribution channels, enabling companies to grow faster and more efficiently.

Franchising allows a company to grow by licensing its business model, brand, and operational procedures to independent franchisees. This method enables rapid expansion with reduced capital investment, as franchisees bear the costs of setting up and operating new locations. In Kenya, a successful agribusiness that produces organic fertilizers could franchise its business model to local entrepreneurs across the country, helping to spread sustainable farming practices while expanding its market presence. Similarly, in Zambia, a thriving poultry farm could franchise its operations, allowing other farmers to replicate their successful methods under the same brand name. This growth strategy benefits from the local market knowledge and entrepreneurial drive of the franchisees, facilitating rapid and widespread growth.

Growth through **product diversification** involves expanding a company's product line to attract new customer segments or enter different markets. For example, a Kenyan dairy cooperative might diversify by producing not just milk, but also cheese, yogurt, and butter, catering to different tastes and increasing revenue streams. In Zambia, a cassava farming business could start producing cassava flour and cassava-based snacks, appealing to health-conscious consumers looking for gluten-free products. By introducing new products that complement existing ones, these companies can increase their market share and reduce dependence on a single product, mitigating risks associated with market fluctuations.

Geographic expansion focuses on entering new regions or countries to tap into larger or underserved markets. This strategy involves adapting products, marketing strategies, and operations to fit the local market conditions, regulations, and consumer preferences. For instance, a Kenyan fresh produce exporter could explore markets in the Middle East, adapting their packaging and marketing to meet the preferences and regulatory requirements of those countries. Similarly, a Zambian groundnut processing company could expand its market reach by entering neighboring countries like Zimbabwe and Tanzania, adjusting its product offerings to suit local tastes. Geographic expansion allows these companies to grow their customer base and increase sales, contributing to overall business growth.

8.2 FINDING THE PROPER APPROACH TO GROWTH

Companies need to choose an approach to growth that fits with their current situation. For instance, geographic expansion is very costly, so would not work for a company with limited resources. As such, any analyses focused on growth should start by examining the company's current offerings, resources, partnerships, employee expertise, and connections with stakeholders. Here, the offerings – the product/service being sold – is critical. There should be something inherently valuable or superior in these offerings for the company to consider basing expansion on. Put another way, growth based on an inferior product is not a good idea.

Tools such as the business model canvas (section 6.2) can also be valuable for finding an approach to growth. The BMC should be updated to represent the current state of the business, not the state it was in when it was formed. In the updated version, there should be a solidly identified customer segment. Based on this, we might consider a few things. First, does the same customer segment exist in a different market that we are not currently in? If the same type of customer exists in another city or country, that might present an opportunity for expansion.

Second, students might consider what else their current customers need. They are selling them something, but could they expand this offering to meet other needs? This analysis can identify viable product line diversification opportunities. These opportunities are our starting point. However, we also need to consider other parts of the BMC. Notably, the company should be able to actually enact these opportunities. This means that there should be a meaningful crossover between our current core activities and these new opportunities. We usually do not want to be doing something entirely different. For instance, if we are currently processing mangos into fruit juices, we might identify that our customers are also interested in papaya juice. This is a good opportunity for diversification, as we can use our existing equipment to press papaya and bottle its juice. While these same customers may also want chicken eggs, that opportunity is not a good one for us, as it does not leverage what we do well.

■

9 CREATING CONNECTIONS: ENTREPRENEURSHIP WITHIN AN ECOSYSTEM

Intended Learning Outcomes 6: Connections to entrepreneurial ecosystem

1. Understand that entrepreneurship occurs within a broader environment of stakeholders
2. Identify the most critical stakeholders for a given business
3. Develop connections with stakeholders in your local context

Moving beyond the entrepreneurship process, students also benefit from understanding entrepreneurship as embedded within a broader ecosystem; they are not acting alone. Leveraging this ecosystem to their advantage can help them succeed. First though, they must understand what this ecosystem is. To this end, there are six primary domains to the ecosystem: institutional support, finance, markets, policy, human capital, and culture (Biru, Gilbert, & Arenius, 2021).

Here, institutional support is especially important for students to understand. Governments and other actors aim to support entrepreneurship through training, financial support, access to markets, access to physical workspaces, and other mechanisms (Balachandra, 2019; Barrios, Reficco, & Taborda, 2019; Brown & Hanlon, 2016; Campos et al., 2017; Chliova, Brinckmann, & Rosenbusch, 2015; Dutt et al., 2016; Gielnik, Frese, Bischoff, Muhangi, & Omoo, 2016; Hudon, 2018; Matin, Hulme, & Rutherford, 2002; Morris, Carlos, Kistruck, Lount, & Thomas, 2023; Premand, Brodmann, Almeida, Grun, & Barouni, 2016). For the aspiring entrepreneur, accessing these support mechanisms can be essential to overcoming the inherent challenges of starting a new business. If possible, it is thus highly beneficial if you are able to link your program to these support mechanisms, such as by having them come to speak with students about their offerings.

Beyond this institutional support, there is also a broader network of entrepreneurial financing. Helping students understand the different sources can be critical. Having investors come and hear 'pitches' from students is also an excellent way of making connections, and for giving students feedback.

Additionally, having career fairs, undertaking industry projects, and having successful entrepreneurs be guest speakers in class can all be effective at both informing students about entrepreneurship and developing connections (Iwu et al., 2021). These efforts might be intensive, but if the ultimate goal is to help students succeed, they can be beneficial.

10 GENERAL BUSINESS SKILLS: E.G., MARKETING AND FINANCE

Intended Learning Outcomes 7: Enhancing business skills

1. Develop basic knowledge in the different functional areas of business
2. Identify which functional areas are most important for one's own business efforts

To help students be successful entrepreneurs, we might also help them develop their basic business skills in areas such as marketing, finance, people management, strategy, operations, and accounting. These skills are not about entrepreneurs per se, but because entrepreneurship is a business activity, these skills are critical.

It is unlikely that your program has space to teach these skills in depth. Indeed, one can take an entire program on accounting, marketing, finance, or any other skill. As such, we likely want to rely on other academic offerings at our institutions. For instance, a business school likely has a well-developed introductory course to accounting. In our own programs though, we can present a brief overview of these topics – perhaps using guest speakers from the business school faculty – to help students understand the basics.

Moreover, this introduction might help students start thinking about which business skills would be most helpful for the ventures they are starting. A venture selling a novel product might rely heavily on marketing, while a venture relying on buying from cooperatives, processing coffee beans, and selling internationally may benefit from operations. Helping students think about this can in turn help them identify which courses they would most benefit from taking.



11 REFERENCES

- Ajzen, I. 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2): 179-211.
- Ajzen, I. 2020. The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4): 314-324.
- Ajzen, I., & Timko, C. 1986. Correspondence between health attitudes and behaviour. *Basic and Applied Social Psychology*, 7(4): 259-276.
- Amankwah-Amoah, J., Boso, N., & Antwi-Agyei, I. 2018. The Effects of Business Failure Experience on Successive Entrepreneurial Engagements: An Evolutionary Phase Model. *Group and Organization Management*, 43(4): 648-682.
- Anand, A., Argade, P., Barkemeyer, R., & Salignac, F. 2021. Trends and patterns in sustainable entrepreneurship research: A bibliometric review and research agenda. *Journal of Business Venturing*, 36(3): 106092-106092.
- Armitage, C., & Conner, M. 2001. Efficacy of the theory of planned behaviour: A meta-analytic review. *The British Journal of Social Psychology*, 40: 471-499.
- Baker, T., Gedajlovic, E., & Lubatkin, M. 2005. A Framework for Comparing Entrepreneurship Processes across Nations. *Journal of International Business Studies*, 36(5): 492-504.
- Baker, T., & Nelson, R. E. 2005. Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage. *Administrative Science Quarterly*, 50(3): 329-366.
- Balachandra, L. 2019. The Improvisational Entrepreneur: Improvisation Training in Entrepreneurship Education. *Journal of Small Business Management*, 57(S1): 60-77.
- Barrios, A., Recco, E., & Taborda, R. 2019. Training effects on subsistence entrepreneurs' hope and goal attainment. *Education + Training*, 61(7/8): 895-917.
- Baum, J. R., & Locke, E. a. 2004. The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology*, 89(4): 587-598.
- Belz, F. M., & Binder, J. K. 2017. Sustainable Entrepreneurship: A Convergent Process Model. *Business Strategy and the Environment*, 26(1): 1-17.
- Bhagavatula, S., Elfring, T., van Tilburg, A., & van de Bunt, G. G. 2010. How social and human capital influence opportunity recognition and resource mobilization in India's handloom industry. *Journal of Business Venturing*, 25(3): 245-260.
- Biggs, J., & Tang, C. 2011. *Teaching for Quality Learning at University*. New York: Open University and McGraw-Hill.
- Biru, A., Gilbert, D., & Arenius, P. 2021. Unhelpful help: The state of support programmes and the dynamics of entrepreneurship ecosystems in Ethiopia. *Entrepreneurship & Regional Development*, 33(1-2): 108-130.
- Brown, T. C., & Hanlon, D. 2016. Behavioral Criteria for Grounding Entrepreneurship Education and Training Programs: A Validation Study. *Journal of Small Business Management*, 54(2): 399-419.
- Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H. C., McKenzie, D., & Mensmann, M. 2017. Teaching personal initiative beats traditional training in boosting small business in West Africa. *Science*, 357(6357): 1287-1290.
- Chliova, M., Brinckmann, J., & Rosenbusch, N. 2015. Is microcredit a blessing for the poor? A meta-analysis examining development outcomes and contextual considerations. *Journal of Business Venturing*, 30(3): 467-487.
- Clough, D. R., Fang, T. P., Vissa, B., & Wu, A. 2019. Turning lead into gold: How do entrepreneurs mobilize resources to exploit opportunities? *Academy of Management Annals*, 13(1): 240-271.
- Cope, J. 2011. Entrepreneurial learning from failure: An interpretative phenomenological analysis. *Journal of Business Venturing*, 26(6): 604-623.
- Davidsson, P. 2015. Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. *Journal of Business Venturing*, 30(5): 674-695.
- Dutt, N., Hawn, O., Vidal, E., Chatterji, A., McGahan, A., & Mitchell, W. 2016. How Open System Intermediaries Address Institutional Failures: The Case of Business Incubators in Emerging-Market Countries. *Academy of Management Journal*, 59(3): 818-840.
- Eckhardt, J. T., & Shane, S. 2010. An update to the individual-opportunity nexus In Z. J. Acs, & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research: An interdisciplinary survey and introduction*. New York: Springer.

- Fishbein, M., & Ajzen, I. 1975. *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, Massachusetts: Addison-Wesley Publishing Company.
- Gielnik, M. M., Frese, M., Bischof, K. M., Muhangi, G., & Omoo, F. 2016. Positive impact of entrepreneurship training on entrepreneurial behavior in a vocational training setting. *Africa Journal of Management*, 2(3): 330-348.
- Godin, G., Valois, P., & Lepage, L. 1993. The pattern of influence of perceived behavioral control upon exercising behavior: an application of Ajzen's theory of planned behavior. *J Behav Med*, 16(1): 81-102.
- Hartsenko, J., & Venesaar, U. 2017. Impact of entrepreneurship teaching models on students' entrepreneurial intentions: The case of Estonia and Hungary. *Research in economics and business: Central and Eastern Europe*, 9(1): 72-92.
- Hudon, M. 2018. *Can Microfinance Work? How to Improve Its Ethical Balance and Effectiveness* by Lesley Sherratt. New York: Oxford University Press, 2016. 256 pp. ISBN: 978-0199383191. *Business Ethics Quarterly*, 28(2): 227-229.
- Iwu, C. G., Opute, P. A., Nchu, R., Eresia-Eke, C., Tengeh, R. K., Jaiyeoba, O., & Aliyu, O. A. 2021. Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *The International Journal of Management Education*, 19(1).
- Johnson, M. P., & Schaltegger, S. 2020. Entrepreneurship for Sustainable Development: A Review and Multilevel Causal Mechanism Framework. *Entrepreneurship: Theory and Practice*, 44(6): 1141-1173.
- Kautonen, T., van Gelderen, M., & Fink, M. 2015. Robustness of the Theory of Planned Behavior in Predicting Entrepreneurial Intentions and Actions. *Entrepreneurship Theory and Practice*, 39(3): 655-674.
- Kim, S., & Kim, A. 2021. Going Viral or Growing Like an Oak Tree? Towards Sustainable Local Development through Entrepreneurship. *Academy of Management Journal*, 65(5): 1709-1746.
- Kisubi, M., & Bonuke, R. 2021. The impact of entrepreneurship education and entrepreneurial attitude on entrepreneurial intentions among undergraduate students in Uganda. *Journal of Management and Business Review*, 23: 2.
- Kleinhempel, J., Beugelsdijk, S., & Klasing, M. J. 2022. The Changing Role of Social Capital During the Venture Creation Process: A Multilevel Study. *Entrepreneurship: Theory and Practice*, 46(2): 297-330.
- Knight, F. 1921. *Risk, uncertainty and profit*. New York: A.M. Kelley (Reprint, 1964).
- Korsgaard, S., Müller, S., & Welter, F. 2020. It's right nearby: how entrepreneurs use spatial bricolage to overcome resource constraints. *Entrepreneurship & Regional Development*, 33(1-2): 147-173.
- Liñán, F. 2004. Intention-based models of entrepreneurship education. *Piccola Impresa/ Small Business*, 3(1): 11-35.
- Madden, T. J., Ellen, P. S., & Ajzen, I. 1992. A Comparison of the Theory of Planned Behavior and the Theory of Reasoned Action. *Personality and Social Psychology Bulletin*, 18(1): 3-9.
- Matin, I., Hulme, D., & Rutherford, S. 2002. Finance for the poor: from microcredit to micro-financial services. *Journal of International Development*, 14(2): 273-294.
- McMullen, J. S., & Shepherd, D. A. 2006. Entrepreneurial Action And The Role Of Uncertainty In The Theory Of The Entrepreneur. *Academy of Management Review*, 31(1): 132-152.
- Moroz, P. W., & Hindle, K. 2012. Entrepreneurship as a Process: Toward Harmonizing Multiple Perspectives. *Entrepreneurship Theory and Practice*, 36(4): 781-818.
- Morris, S., Carlos, C., Kistruck, G. M., Lount, R. B., & Thomas, T. E. 2023. The impact of growth mindset training on entrepreneurial action among necessity entrepreneurs: Evidence from a randomized control trial. *Strategic Entrepreneurship Journal*, 17(3): 671-692.
- Nade, P. B., & Malamsha, C. K. 2021. The influence of agri-entrepreneurship courses studied on youth farm entrepreneurial intention: Evidence from Folk Development Colleges in Tanzania. *South African Journal of Economic and Management Sciences*, 24(1).
- Nikiforou, A., Dencker, J. C., & Gruber, M. 2019. Necessity entrepreneurship and industry choice in new firm creation. *Strategic Management Journal*, 40(13): 2165-2190.
- Premand, P., Brodmann, S., Almeida, R., Grun, R., & Barouni, M. 2016. Entrepreneurship Education and Entry into Self-Employment Among University Graduates. *World Development*, 77: 311-327.

- Rauch, a., & Hulsink, W. 2015. Putting Entrepreneurship Education where the Intention to Act Lies: An Investigation into the Impact of Entrepreneurship Education on Entrepreneurial Behavior. *Academy of Management Learning & Education*, 14(2).
- Schmutzler, J., Andonova, V., & Diaz-Serrano, L. 2019. How Context Shapes Entrepreneurial Self-Efficacy as a Driver of Entrepreneurial Intentions: A Multilevel Approach. *Entrepreneurship: Theory and Practice*, 43(5): 880-920.
- Schultz, C. 2022. A Balanced Strategy for Entrepreneurship Education: Engaging Students by Using Multiple Course Modes in a Business Curriculum. *Journal of Management Education*, 46(2): 313-344.
- Shane, S. 2003. *A general theory of entrepreneurship*. Northampton, MA: Edward Elgar Publishing.
- Shane, S., & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1): 217-226.
- Simarasl, N., Jiang, D., Pandey, S., & Navis, C. 2022. Constrained but not contained: How marginalized entrepreneurs overcome institutional bias and mobilize resources. *Strategic Entrepreneurship Journal*, 16(4): 853-888.
- Stam, W., Arzlanian, S., & Elfring, T. 2014. Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators. *Journal of Business Venturing*, 29(1): 152-173.
- Stewart Jr, W. H., & Roth, P. L. 2001. Risk propensity differences between entrepreneurs and managers: A meta-analytic review. *Journal of Applied Psychology*, 86(1): 145-153.
- Tatiana, I., Lars, K., & Ute, S. 2011. Entrepreneurial intentions in developing and developed countries. *Education + Training*, 53(5): 353-370.
- Townsend, D. M., Hunt, R. A., McMullen, J. S., & Sarasvathy, S. D. 2018. Uncertainty, Knowledge Problems, and Entrepreneurial Action. *Academy of Management Annals*, 12(2): 659-687.
- Valerio, A., Parton, B., & Robb, A. 2014. *Entrepreneurship Education and Training Programs around the World: Dimensions for Success*. Washington DC: The World Bank.
- Wales, W. J., Patel, P. C., Parida, V., & Kreiser, P. M. 2013. Nonlinear effects of entrepreneurial orientation on small firm performance: The moderating role of resource orchestration capabilities. *Strategic Entrepreneurship Journal*, 7(1): 93-121.
- Williams, C. C., & Gurtoo, A. 2012. Evaluating competing theories of street entrepreneurship: some lessons from a study of street vendors in Bangalore, India. *International Entrepreneurship and Management Journal*, 8(4): 391-409.
- Zimmer, C., & Aldrich, H. E. 1987. Resource Mobilization through Ethnic Networks: Kinship and Friendship Ties of Shopkeepers in England. *Sociological Perspectives*, 30(4): 422-445.

LIST OF FIGURES

- Figure 1: The entrepreneurial process and the idea funnel
- Figure 2: The theory of planned behaviour
- Figure 3: Theory of planned behaviour applied to entrepreneurship
- Figure 4: The idea funnel and idea generation
- Figure 5: List of idea generation exercises
- Figure 6: Generic value chain for agriculture
- Figure 7: Pictures for the upstream component of the value chain. Clockwise from top right: an agriculture supply shop, fertilizer deliveries, agricultural extension services, on-farm fertilizer use, input seeds
- Figure 8: The idea funnel and initial evaluation
- Figure 9: The idea funnel and developing business ideas
- Figure 10: The lean startup canvas
- Figure 11: The idea funnel and starting a business

LIST OF TEACHING TOOLS

Teaching Tool 1:	Vignette on small-scale engagement in the circular economy
Teaching Tool 2:	Vignette on making a job for yourself in entrepreneurship
Teaching Tool 3:	Vignette on innovative technological entrepreneurship
Teaching Tool 4:	Vignette on acting entrepreneurially within a company to reorganize activities
Teaching Tool 5:	Vignette on acting entrepreneurially to develop new market opportunities in a company
Teaching Tool 6:	Vignette on acting entrepreneurially to add new product lines at a company
Teaching Tool 7:	Exercises for students to develop an internal locus of control
Teaching Tool 8:	Exercises for students to develop the motivation to be an entrepreneur
Teaching Tool 9:	Exercises for students to develop self-efficacy
Teaching Tool 10:	Explaining idea generation to students
Teaching Tool 11:	Exercise to generate ideas along the value chain
Teaching Tool 12:	Exercise to generate ideas
Teaching Tool 13:	Exercise to generate ideas
Teaching Tool 14:	Exercise to generate ideas
Teaching Tool 15:	Exercise to generate ideas
Teaching Tool 16:	Exercise to generate ideas
Teaching Tool 17:	In class exercise for preliminary evaluation
Teaching Tool 18:	Potential assignment or exam questions for preliminary evaluation
Teaching Tool 19:	Exercises for developing a value proposition and defining customer segments
Teaching Tool 20:	Potential assignment or exam questions developing a value proposition and defining customer segments
Teaching Tool 21:	Exercises for developing an aligned BMC
Teaching Tool 22:	Potential assignment or exam questions for developing an aligned BMC

LIST OF INTENDED LEARNING OBJECTIVES

Intended Learning Outcomes 1:	Diversity of entrepreneurship
Intended Learning Outcomes 2:	Building an entrepreneurial mindset
Intended Learning Outcomes 3:	Developing and evaluating business ideas
Intended Learning Outcomes 4:	Starting a business
Intended Learning Outcomes 5:	Growing a business
Intended Learning Outcomes 6:	Connections to entrepreneurial ecosystem
Intended Learning Outcomes 7:	Enhancing business skills