

# Innovation Toolbox

## Evaluate Idea

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## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION</b> .....	<b>1</b>
1.1	What qualifies as an innovation?.....	1
1.2	Why evaluate or assess an innovation?.....	1
1.3	Is the innovation new? .....	2
<b>2.0</b>	<b>IS IT COMMERCIALY FEASIBLE?</b> .....	<b>3</b>
2.1	The Market and Your Potential Customers .....	3
2.2	The Idea and the Product/or Service .....	5
2.3	Revenues, Finance and Skills Needs.....	7
<b>3.0</b>	<b>IS IT TECHNICALLY VIABLE?</b> .....	<b>9</b>
3.1	Prove it ... ..	9
3.2	How?.....	10

## 1.0 INTRODUCTION

People every day, whether in business or not, have bright ideas and make initial discoveries about new or improved products, services or processes. Generating ideas and being innovative are important contributors to success in business.

### 1.1 What qualifies as an innovation?

It starts with an original idea or discovery. Any original concept, new or improved device, product, material, business model, process or service can be considered an innovation. The true test of whether an innovation can become a business success is when:

- ➔ In the case of a new device, product or service, it becomes accepted by the marketplace, or
- ➔ In the case of a new business model or process improvement, the cost saving, efficiency gains or productivity improvement it achieves translates into a competitive advantage.

### 1.2 Why evaluate or assess an innovation?

Because only a very small number of innovations end up making money for their creators. Many factors can contribute to this low success rate, such as:

- ➔ the innovation is not technically feasible;
- ➔ there is little demand for the innovation;
- ➔ the development of the innovation has been poorly planned;
- ➔ it is unable to be produced at competitive prices;
- ➔ inadequate knowledge of the marketplace and competitors;
- ➔ inadequate management skill to commercialise the innovation.

So before you go and invest scarce, valuable resources, time and energy in the quest to get your innovation into the marketplace, there are some important steps you can take to determine whether the innovation is, or can become, a *commercially feasible* opportunity. This also happens to be the least costly aspect of taking a new innovation to market, one that can save you that second mortgage on the family home, or give you the clarity of the innovation's potential that it has to be pursued.

Either way, by looking ahead, doing some planning and by getting good advice an early assessment of your innovation will give you the confidence to make an informed decision.

### 1.3 Is the innovation new?

The ability to fully exploit the potential of your new idea will be partly determined by the uniqueness of the intellectual property (IP) underpinning the innovation, that is, that you are the first to conceptualise this new innovation. A common starting point to confirm you are the first is to find out whether anybody else has already created the idea and protected it through IP registration, like patents, designs and trademark registrations. This is called a 'prior art' search.

You can search the 'prior art' by searching freely available online databases that contain millions of records of registered IP – patent databases, design and trademark registers, for example. You should start with Australian databases first, then progress through various international databases in countries you think your innovation will be successful.

If your search reveals that someone else has already created the innovation, and has protected it, this may be the end of the road for your idea, unless you can cleverly differentiate or distinguish your innovation from the one you have found. Beware, though, if you press ahead with the innovation and someone else has already protected it through IP registration you carry the real risk of infringing another's IP rights, which carries financial and civil penalties. Seeking professional advice from an IP attorney will be critical at this point.

Otherwise, if you find that there is no prior art from your searches, then you have a very good chance of taking your innovation further by seeking formal registration. To support your application it will be useful to be able to clearly prove ownership and/or commercialisation rights of the IP, such as laboratory notes/working papers and employment contracts that show when and how the IP was developed, or assignment agreement, licensing agreement etc.

## 2.0 IS IT COMMERCIALY FEASIBLE?

The real test for whether your innovation will be successful is assessing its commercial feasibility. The purpose of this exercise is to help you determine whether your idea should be developed further. Determining commercial feasibility essentially means considering the various factors and elements that are commonly required for a business to profitably sell the innovation to a group of customers over a reasonable timeframe to justify the venture. In simple terms, if a business can't achieve a sustainably profitable outcome from realising the intended competitive advantage/s from the new idea's implementation or selling the innovation to customers, then it is generally unlikely to be a commercially feasible idea.

Assessing commercial feasibility needs to be distinguished from evaluating technical feasibility in relation to new product development. While a new idea or innovation may be considered fit for its intended purpose this does not automatically mean the innovation will be a commercial success. Completing a technical feasibility is covered in the next section. Furthermore, evaluating the commercial feasibility of your idea should be completed **first** and very **early** in the stages of your idea's conception.

In the case of new product or service innovations there are generally three broad areas you need to examine to help you decide whether your proposed innovation has the prospects for commercial success. To help you understand the scope of its potential, there are some straight-forward questions you need to ask. Generally speaking, if you answer 'no' to any of the following questions you should explore in more detail the implications to the overall feasibility of the innovation. Simply put, the answers to these questions will determine how, when, why (and if) you move forward with the idea.

### 2.1 The Market and Your Potential Customers

#### 2.1.1 Does the product or service fill a gap in the market? Do your customers have an incentive to switch to this new product or service?

The ability to fill a viable gap in the market is key to the success of your product or service. "Me Too" ideas will find it difficult to attract funding and invariably fail because of competitive pressures. Your product or service should be unique, solve an existing or potential problem, and provide an incentive for your customers to switch – be it quality, price, improvement or other. Understand who the competitors are (either directly or indirectly) operating in your target market, and how your offering compares on functionality, durability, appearance and price.

### **2.1.2 Is your target market free of competitors and suppliers that would represent a threat or risk to the commercialisation of your idea?**

Competition is one of the major reasons new products or services fail. Established market leaders have the ability to assert massive financial pressure on new product entrants through pricing strategies, promotion and preferred supplier arrangements (effectively blocking certain distribution channels). If you are not willing to compete in your new market space, then you still have the option of licensing or selling off your technology outright to those firms.

### **2.1.3 Is the industry you will be competing in growing, stable or declining?**

Markets experiencing negative growth or that are vulnerable to economic or environmental factors need to be analysed closely. In examining your target market, try to identify economic conditions and growth trends in the specific segments and sub-segments of the general market in which your innovative business process improvement enables you to compete more effectively or your new idea will be sold.

### **2.1.4 Can the finished product or service compete on price in your target market? Is the market for your type of product or service considered large enough to ensure commercial viability?**

The retail price for your finished product or service and the size of the market with the buying power and willingness to purchase at that price, are two of the most important aspects of the commercial feasibility of your idea. If you cannot sell the product or service to the final consumer at a price - in large enough volumes - that covers the costs of production, marketing and distribution of that product or service, then you need to think seriously about the viability of the new venture. This is called price sensitivity modeling. It provides a market tested analysis of the probability of people purchasing your product or service at any given price. This provides a justified basis on which to make any innovation investment decisions.

### **2.1.5 Does your potential target market extend outside of Australia?**

If the product or service you intend to commercialise only targets the domestic market, this may restrict your ability to grow the business and secure more funding.

The limited size of the Australian market and the lure of large international markets mean strong consideration needs to be given to your idea's export potential.

### **2.1.6 Do you understand how a customer would actually use this product or service?**

Some of the seemingly best ideas are fundamentally flawed because the idea cannot be translated into a usable or user-friendly product or service. This may be purely a feature of the technical complexity of the technology, or cost restrictions imposed on the final product that prevent it from being built and marketed in the way the product or service was intended for use. Your goal should not only be to produce a functional product or service, but to produce it in a way that it becomes attractive to the consumer and within the price points the market can bear.

### **2.1.7 Do you understand how your product or service will be physically distributed to customers?**

Physical distribution of a product or rollout of a service is a highly time consuming and demanding activity, particularly if you are marketing your idea internationally. It requires a well-planned, well-financed marketing and distribution strategy. For products, this generally involves the establishment of a system of agents and distributors to sell and ship your products to end-users. If your management team lacks sales experience in your target market, the complexities and expense of establishing and monitoring a distribution system may require you to consider alternative strategies, including licensing, assignment, or joint ventures.

## **2.2 The Idea and the Product/or Service**

### **2.2.1 Is the product or service completely safe to use?**

The level of safety of your product or service when used under both informed and untrained operation needs to be taken into account in determining the technical and market feasibility of your idea. If it presents any potential risk to the wellbeing of the user, no matter how remote, then you should consult legal counsel early in the idea development process. If you are unable to alleviate operational risks you will not only have difficulty in attracting funding, but may also find barriers to commercialisation through relevant international laws and regulations, industry standards, and expensive product liability insurance costs.

### **2.2.2 Is the research and development lead time to get the product to market less than two to three years?**

Lengthy research and development time lines tend to impact negatively on the ability to secure funding to finance your venture. This is because many investors are seeking relatively short-term returns on their investment (i.e. 12 months - three years). Long lead times can be offset somewhat by the promise of exceptional returns over the medium to long-term.

### **2.2.3 Is the development required to bring the product to the market-ready stage likely to prove relatively simple?**

Technical problems in completing a market-ready and user-friendly product need to be considered. There is a need to visualise and detail what you expect will be the completed format and design of the product or service. A stocktake of expected bill of materials will similarly help determine if you can produce and sell the product within profitable price points.

### **2.2.4 Can the product or service be commercialised without relying, to any great extent, on its linkages with other products or systems?**

If your idea is dependent on linkages with other products or systems (e.g. hardware that requires software to drive it), careful consideration needs to be given to how this could affect the marketability or technical feasibility of your technology. Market failures, competition or unexpected developments in products or systems upon which your technology is dependent may undermine your progress.

### **2.2.5 Can the product be distributed and sold without the hindrance of industry standards, regulations and other tariff and non-tariff barriers to trade?**

Regulations and standards vary significantly from product to product. Moreover, each of the regulations and standards themselves differ between international markets, even down to a state or local level. If you have identified barriers that may restrict the distribution of your product or idea in a target market, you need to investigate the potential impact of this on your commercialisation efforts. Mitigation strategies to avoid such barriers may exist, but the expense or effort in doing so may not prove commercially viable.

## **2.2.6 Can the intellectual property be protected in this industry?**

Intellectual Property (IP) protection is a fundamental issue that needs addressing from the time of idea conception. There are cases for and against protecting your IP which need to be considered at an early-stage. From the outset you should seek advice from an appropriately qualified IP lawyer or patent and trade mark attorney.

## **2.2.7 Does potential exist for additional products, models, styles, variations and price ranges?**

You need to determine through a market feasibility study how long the expected life cycle of your product or service will be. Ideas with short-term life cycles (i.e. less than six - ten years) may have difficulty in attracting funding. You need to demonstrate the wide range of market applications for your product or service, or the ability to update or to make some design iterations that will ensure the longevity of the idea. The potential to offer multiple units or designs at varying prices is also a precondition for successful marketing.

## **2.2.8 Does your product or service have an extended life cycle that ensures long-term revenue flow?**

Every product category has a limited life. Software, for example, tends to have a very short product life cycle unless it is updated and upgraded to meet the competition. Therefore, an element of your feasibility study should be to assess how long your product or invention can expect a fair run in the market before it is superseded, made redundant or falls to market competition.

## **2.3 Revenues, Finance and Skills Needs**

### **2.3.1 Do you know how the product or service will generate revenue and profit for you?**

At an early-stage you need to start thinking about how your idea will make money. A number of commercialisation options exist, including manufacturing, licensing or selling your technology outright - each dictating differing business or company structures and levels of investment in product development and marketing.

### **2.3.2 Have you identified the funding options to progress your product or service?**

Once your feasibility study has been completed it may be time to consider developing your idea to the next stage. Typically this involves identifying what cash, human and technical resources are required to take your new idea or innovation further. This includes identifying funding needs and other capital requirements.

### **2.3.3 Do you have the marketing, technical, financial, operational and management competencies required to commercialise the new idea or innovation?**

If you do not possess all the above skills or knowledge sets, the progress of your innovation or service will be affected to some degree. It is important that you consider seeking the services of appropriate people with the skills to assist you with clearly defined roles and responsibilities. Don't fall into the trap of thinking you can fulfil all of these critical roles; allocating specialist tasks to experts as you need them completed will only increase your chances of success.

### 3.0 IS IT TECHNICALLY VIABLE?

It is fundamentally true that consumers buy products for the benefits they provide, not for the technology underlying the product. You probably have a mental picture of your idea or innovation expressed as a product of some shape or process in some form, and no doubt you have in mind how that final product and process looks, feels, provides benefit and, ultimately, used for its purpose in the hands of your customers or users. This has to be your goal, and the end point of this entire feasibility exercise is to determine how you will make a sustainable profit from the sale of products or successful implementation of a new business model, process or service.

If the idea or concept has demonstrated a measure of commercial feasibility that is sufficient for your purposes, the next step is to explore how you turn it into a product or process. Ask yourself these questions:

- ➔ Do you have a working model of the product or process?
- ➔ Have you evaluated the safety factors of the model?
- ➔ Have you evaluated the environmental factors?
- ➔ Have you evaluated the feasibility of producing the product or implementing the process?
- ➔ Have you measured how the product or process will perform?
- ➔ Do you have a design for the product or process?
- ➔ Do you have a design for the production process?

#### 3.1 Prove it ...

But how do you convert an idea into a productised form, which functions the way you intend it to, is reproducible in sufficient quantities, and is effectively delivered to the end-user by the method you planned, with the expected or intended benefits of the idea/product being enjoyed by the customer?

Before you consider embarking on mass product development or manufacturing activities based on a raw idea or concept that hasn't been tested or validated, evaluating whether the idea or concept is even technically achievable is essential. Conducting a technical feasibility is a sequential evaluative process of proving that an idea or concept is technically possible.

In broad terms this means taking the various development steps necessary to ensure the product actually achieves the results or outcomes you intend or claim it to achieve. The objective of the technical feasibility step is to confirm that the product will perform, ensure that there are no production barriers and that the final prepared product is of practical benefit. In essence, you have to prove your idea and its product or service actually works...

### 3.2 How?

By undertaking a proof-of-concept process you are gathering sufficient evidence of the technical viability of the idea for your product or service. Importantly, elements of the technical viability process will impact some of the commercial feasibility assumptions or conclusions, which will need to be adjusted as new knowledge of the product emerges.

The proof-of-concept stage generates knowledge about the product's design, performance, production requirements, and preliminary production costs. Generally the end-result of this activity is a working model, more commonly known as a prototype.

At this stage ideas are turned into operational form (certainly not the final form), the core functionality of the idea is tested, basic prototypes may be developed and IP registration can be taken out. It is essential that the results of a proof-of-concept are reproducible, and, if relevant, the quality expectations of the relevant regulatory community are satisfied. While Table 1 provides further clarification and detail of the typical activities that could be involved in a proof-of-concept, broadly some proof-of-concept activities will involve:

- ➔ Initial production of a new product prototype and testing to determine if it can actually be used as desired; and/or
- ➔ Running a new process for the first time and testing to determine that it performs the desired transformation of inputs to outputs; and/or
- ➔ Delivering a service for the first time and testing to determine that the expected benefits to recipients are realised and that the delivery method is effective.

**Table 1. Typical activities involved in pre-, post- and at, proof of concept activities for certain product classes.**

	<b>Biotechnology</b>	<b>Engineering &amp; manufacturing</b>	<b>Information technology &amp; telecommunications</b>
<b>R&amp;D</b>	<ul style="list-style-type: none"> <li>• Research solutions</li> <li>• Identification of lead compound for trials</li> <li>• Develop pre-clinical solutions</li> <li>• Toxicity testing</li> <li>• Optimisation</li> </ul>	<ul style="list-style-type: none"> <li>• Research solutions</li> <li>• Research components</li> <li>• Establish specifications</li> <li>• Process flow diagram</li> <li>• Process &amp; instrumentation diagram</li> <li>• Modelling</li> <li>• Simulation</li> <li>• Develop solutions for core innovations</li> </ul>	<ul style="list-style-type: none"> <li>• Research solutions</li> <li>• Requirements analysis</li> <li>• System design</li> <li>• Functional specification</li> <li>• Software requirements documentation</li> <li>• Modelling</li> <li>• Build of first prototype (core innovation)</li> </ul>
<b>Proof-of-concept</b>	<ul style="list-style-type: none"> <li>• Animal testing</li> <li>• Clinical trials (phases I, II &amp; III)*</li> <li>• Purification</li> <li>• Small scale field or greenhouse testing</li> <li>• Build and test full prototype</li> </ul>	<ul style="list-style-type: none"> <li>• Build and test full prototype</li> <li>• Integrate components</li> <li>• Laboratory tests</li> <li>• Optimisation</li> <li>• Refine design</li> <li>• Integration</li> </ul>	<ul style="list-style-type: none"> <li>• Build first version of product</li> <li>• Alpha, Pilot testing*</li> <li>• System, load, interoperability testing</li> <li>• Platform support</li> <li>• Integration</li> <li>• Optimisation</li> <li>• Implementation and Quality Assurance documentation</li> </ul>
<b>Early stage commercialisation</b>	<ul style="list-style-type: none"> <li>• Some (but not all) clinical trials phase IV*</li> <li>• Field trials</li> <li>• Test procedures documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Field trials</li> <li>• Design production process</li> <li>• Tool-up for trial production</li> <li>• Trial production</li> <li>• Test procedures documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Beta testing*</li> <li>• Field trials</li> <li>• Test procedures documentation</li> </ul>

\*These terms have a particular meaning in conducting trials

In completing elements of any of the above proof-of-concept steps, some of the essential, yet generic, outcomes of the activity need to achieve or uncover the following issues:

- ➔ Examine the operational requirements of the product or process;
- ➔ Identify potential safety and environmental hazards;
- ➔ Conduct a preliminary production assessment;
- ➔ Conduct a preliminary manufacturing assessment;
- ➔ Estimate engineering prototype costs.