Entrepreneurship for Creative Scientists

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This book is dedicated to the many students and other delegates around the world who attended our workshops on 'Entrepreneurship for Scientists and Engineers'. We are very grateful for the many contributions made during discussions at these workshops which have added significantly to this book.

Contents

Preface

This book sets out to clarify for scientists and engineers the steps that are necessary to take an idea along the path to commercialization and possible success. The difference between a scientist and an entrepreneur is discussed and the consequence to an enterprise of misunderstanding this difference. The book deals essentially with businesses started by scientists and based on innovation. The concept of patent protection is explained as is the process of applying for a patent. Finance and fund-raising are extensively dealt with, topics approached by scientists with little enthusiasm.

The book takes the reader through the need for a business plan and gives examples of how such a plan might look. The plan is meant, among other things, to clarify the strategy of the business and to determine the money that the company will need, when, and how often. Fund-raising is discussed at length in the book with particular attention focussed on the technique of ‘pitching’ for funds. Perhaps to the surprise of creative scientists, it is the management team and the personality of the entrepreneur that will count for much more with investors than the brilliant idea!

Much emphasis is put on the need for an inspiring and experienced management team for start-up companies. Here the founder scientist of the company often has to settle for appointing an entrepreneur as his/her boss—sometimes a decision that is unnecessarily delayed. Then there are the customers. The book points out, unsurprisingly, that they are the most important component for a successful business. The importance of a credible market survey is stressed.

The book deals with scientists who start companies as the entrepreneur or with an entrepreneur as the CEO and who take an invention all the way through to product launch. It also deals with those scientists who, acting as entrepreneurs, take a shorter route to commercialization by selling their intellectual property, generally to an established company, while retaining their full-time employment in academia or elsewhere.

Acknowledgements

We would like to give our sincere thanks to everyone who has helped with the writing of this book.

In particular, we would like to thank Yumiko Hamano for invaluable help on the complex subject of patents, and to Gareth Williams of Skyscanner for very useful advice drawn from running an especially successful start-up. Also, thanks to David Wooldridge of the Welsh Government Business Innovation Programme for his very thoughtful comments on the intellectual property sections of this book, and to Amir Shadmand, CEO and Co-founder of Supenta, for his advice on writing a business plan.

This book would not have been written without the decision of the Institute of Physics UK to run entrepreneurship workshops for scientists and engineers around the world. We would like to thank the speakers and the many delegates for their enthusiastic contributions to the workshops which have found their way into the contents of this book.

Author biographies

Dawood Parker

Dawood Parker read Physics and Mathematics at the University of Cape Town and obtained his PhD in Physics at Southampton University. He was a lecturer in Medical Physics in University College, London where he founded and was appointed Director of the Medical Instrumentation Unit, a research group which collaborated with and was supported by industry. He played a significant role in the development of continuous invasive and non-invasive techniques used in the care and management of pre-term infants. In 1978 he spent a year as a consultant at Critikon Inc, Irvine, California, (a Johnson and Johnson company), where he was involved in the research, development and production of sensors for patient monitoring.

He became a Fellow of the Institute of Physics in 1985. In 1986 he was awarded a personal chair in Physics in the University of Wales, Swansea, where he was the Director of the Biomedical Sensors Unit.

From 1984 to 1989 he was Consultant Director of Research and Development, Novametrix Medical Systems Inc., Wallingford, Connecticut. He has been a consultant to a number of major pharmaceutical companies.

In the last few years he has been involved in university–industry collaboration and has initiated a number of start-up companies which have resulted in the launch of successful patient monitoring instrumentation. Three of his start-up companies were acquired by major international pharmaceutical companies. He is currently Managing Director of Melys AFS Ltd and Melys Diagnostics Ltd, both of which are involved in the development of non-invasive patient monitoring systems.

He has published many scientific papers and holds a number of patents. He was awarded the MBE in 2013.

Dr Surya Raghu

Dr Surya Raghu received his PhD degree in mechanical engineering from Yale University in 1987. He was a post-doctoral fellow at Yale, a Humboldt Scholar at the Technical University of Berlin, Germany, Assistant Professor at SUNY, Stony Brook, visiting scientist at NIST and AFOSR Laboratories, and R&D Team Leader at Bowles Fluidics Corporation and has been the founder-president of Advanced Fluidics LLC since 2001.

Dr Raghu is currently involved in the development of products related to physiological monitoring, DNA testing, wireless corrosion sensors, aerodynamic flow control and spray technology. These products are being developed as joint collaborations with SMEs in the UK and the US. He has been awarded 11 US patents and has over 10 pending patents/invention disclosures as an inventor or co-inventor. He has extensive experience in developing products starting from the basic inventions. His research interests include development of meso-, micro- and nanofluidic devices for aerospace, chemical and biotechnology applications.

Dr Raghu is a recipient of the Alexander von Humboldt award from Germany, an Associate Fellow of the AIAA, an invited member of the Special Emphasis Review Panel on Nanotechnology at the National Institutes of Health, US. His passion is in the commercialization of research-generated inventions and has been the Co-Director of Entrepreneurship Workshops in several countries over the last several years.

Richard Brooks

Richard is a chartered accountant with over 25 years' experience of working with start-ups and SMEs. Richard lives in Cambridge, UK.

Richard qualified at Ernst and Whinney and became Financial Controller of Samuelson Group plc and Finance Director of Samuelson Communications Ltd at the age of 28. In 1990 he moved to Laserpoint Communications Ltd as Finance Director. In 1991 he was appointed as Managing Director as part of an agreement to put the company into administration. He restored its solvency and returned it to its founder a year later when he joined FD Solutions. A co-founder of FD Solutions—a company providing finance director services to companies internationally—Richard's specialist sectors include technology, manufacturing and food. His particular skill-set includes management information systems design and implementation for growing businesses.

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Chapter 1

Scientists as entrepreneurs

An entrepreneur is commonly seen as a person who has the skills and initiative to anticipate future needs and who runs a business that brings new products to the market. The entrepreneur accepts the risks involved and benefits from the rewards of a successful venture.

Not many scientists become entrepreneurs. Even scientists with world-beating ideas are rarely motivated to commercialise these for financial gain. It must be self-evident that scientists and entrepreneurs live in very different worlds. Even so, some scientists have broken the mould and become successful entrepreneurs. An inspiring example is Ray Dolby, the US-born physicist who invented the Dolby Noise Reduction system, a technique for reducing hiss originally on tape recordings. In 1965 he started his company, Dolby Laboratories, which developed the Dolby Stereo sound system for cinema. From the 1970s for over 20 years his noise reduction method was used in almost every recording device, which made his company very successful. This book endeavours to answer some of the questions that scientists with an interest in entrepreneurship might ask about taking a novel idea along the path to commercialisation.

Scientist as entrepreneur?

For a scientist considering entrepreneurship, the judgement to make is whether to be the entrepreneur or to join forces with an entrepreneur. But what's the difference between a scientist and an entrepreneur? Is there one?

Creative scientists have curiosity, imagination, good reasoning skills and self-belief. But so do entrepreneurs. So what's the difference? Scientists are often unaware of, or show little interest in, the commercial potential of aspects of their scientific investigations. Entrepreneurs, however, have a keen sense of what an invention might be worth.

This is fine, but it does mean that in past decades scientists have come up with some brilliant, world-beating, millionaire-making inventions and have not been the

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ones to benefit from them. If you are reading this book you are probably wondering whether it is possible to make some money out of an idea you already have. If this is the case then showing disregard for, or having little interest in, financial matters will not take you very far. It is not possible for anyone to make money out of an idea without some financial acumen.

So what are the necessary attributes of entrepreneurs? Your stereotypical successful entrepreneur is said to be logical, perceptive, organised and responsible, confident, socially extrovert, an excellent communicator, and able to cope with failure.

There are few scientists who have achieved a level of success in their field without being logical, perceptive, organised, responsible and confident. Many scientists have to be excellent communicators or they would never gain the funding they need for their work. Some might even be socially extrovert. All scientists, surely, must be able to cope with failure as no-one's theories or experiments always work out as predicted. However, people who are not entrepreneurs—whether scientists or not—are generally cautious about failure so they would rather not take financial risks.

On the face of it then, the attributes associated with creative scientists and entrepreneurs are not all that different, but there are differences that do appear to be concerned with financial matters. What we are talking about in this book is commercialising inventions. This is what an entrepreneur does—creates products of one sort or another that can be turned into money—and for this you do need 'a head for business'.

Do you have a head for business?

Are you a potential entrepreneur? Consider the following entirely unscientific personality test:

- Do you initiate projects and carry them through?

  Have you had an idea and taken it all the way from idea to product, or do you feel that the interesting part of a project has finished once the idea begins to be commercialised?
- Can you delegate?

  Another way of putting this is 'can you work in a team?' It is important to recognise early on that you are unlikely to have all the skills you need for your project and you will need to, at the very least, pick other people's brains and accept what they tell you. Depending on how far you take your idea, you may need to employ people with skills you neither have nor understand and trust them to do the work you ask them to do.
- Can you be realistic?

  In the course of taking an idea from concept to product you will find everyone doubts you at some time or other, including yourself. Yes, you need to be committed to your idea but you need to be realistic. It's no good giving up just because someone thinks your idea is a bad one if your research says it's okay. But it's also no good flogging a bad idea just because you don't want to prove the doubters right.

- Have you managed projects on your own?
  The buck always stops with the entrepreneur. There is no-one to fall back on. You need to be able to think clearly under pressure, be convincing about your project and your product and be decisive.
- Do you enjoy being in charge?
  Perhaps 'enjoy' is a bit strong, but you do need to be confident and comfortable with responsibility in order to take an idea and make something saleable out of it, no matter what the obstacles might be.
- Could you hire and fire others when necessary?
  It may seem a bit premature to be asking this when all you have at the moment is an idea, but it might in fact be the most important question to answer. If you answer 'no' to this one, this probably means that you are not cut out to run a start-up company. There are other entrepreneurial options that might work better for you.
- Can you criticise other people's work and get them to do what you ask them?
  This is a basic management skill. Again, if you feel that you don't want to work in this type of situation, running a start-up company may not be for you. Be a different type of entrepreneur.
- Are you flexible? Adaptable?
  If you are so wedded to your idea in its current form that you can't change the direction of your research/development when commercial reasons dictate, or you don't feel able to sell your invention for whatever price before the point in its development that you were aiming for, you may not be an entrepreneur.
- Can you negotiate and compromise without feeling that you are selling out?
  'Science' and 'compromise' do not always go together. When developing a product for the market or considering the sale of technology or your company, you may find you have to compromise.
- Can you delay gratification to attain a goal?
  Do you have the determination and patience to wait for the right opportunity to sell your technology or business? Or would you be tempted to sell it at the earliest possible time despite its long-term potential?

An entrepreneur would answer 'yes' to all or certainly most of these questions.

There is no reason why a creative scientist should not be an entrepreneur. It can be personally, professionally and financially very rewarding. If you did not answer 'yes' to most of the questions above or there were areas within those questions that you felt uncomfortable even thinking about, then being an entrepreneur may not be for you. If you're not suited to it, being an entrepreneur can be stressful, demoralising and frustrating. This does not mean that you should give up on any idea or invention that you have. Considering before you start whether you want to be the entrepreneur behind your idea and whether you would be the right person to start a company will help you to decide in which direction you should go with your idea.

Not being the person running the show can be difficult for an inventor to accept, but it is a decision worth getting right. There are other ways of making use of an idea including going into business with someone who is already an entrepreneur. This is an option that will appear again in different forms in this book. There is a saying used in business circles that ‘a brilliant idea with poor leadership is less likely to succeed than a moderate idea with good leadership’. If you have a brilliant idea you owe it good leadership.

Is entrepreneurship a gamble?

If you look up the definition of ‘entrepreneurship’ in almost any dictionary you will find three things mentioned in association with the word: business-venture, risk and profit. If you find the idea of risk exciting read on. If you are terrified by it, please still read on and by the end of the book I hope you will have a better understanding of some of the risks of running a business.

Scientists are used to making decisions based on complete data—for example, a scientist would not apply for a research grant on information that they do not have evidence for. But in contrast an entrepreneur must have the ability to make decisions, such as starting a company, on incomplete data—and that means taking a risk. The decision is made to start a company even though all the factors that could determine its success cannot be known at the time. The information is incomplete. But entrepreneurs do not gamble. They take risks that they have carefully calculated.

Risk must be acceptable. What does this mean? Is the same risk acceptable to one person and not to another? Despite your optimism about the potential success of your business, it is important to consider the position you may find yourself in should it fail. If, for example, you intend to put everything you and your family have into the business and then borrow money that will take the rest of your life on an average salary to repay, imagine what it would be like if the business failed completely and you found yourself with no home or savings and a large debt. That’s your worse-case scenario. If this worse-case scenario seems okay to you then taking this degree of risk is ‘acceptable’ to you. However, if even just thinking about this much loss as a possibility has given you the heebie-jeebies then this is not an acceptable risk for you! In which case you work out what you are prepared to lose should the worst happen. You have to work out for yourself (and you probably need to consult those around you) what is an acceptable risk. Entrepreneurs don’t ‘gamble’ they take ‘calculated’ and ‘acceptable’ risks.

Entrepreneurship is about creating a new business. That’s all. It’s not rocket science. So, any scientist should be able to create one—any scientist who has an idea or invention and a little curiosity about business. The aim of this book is to show you that entrepreneurship can fit well with science.

This book won’t tell you how to make a lot of money. It will, though, tell you how to create something saleable out of an invention, and how to make a business out of that. You may make some money out of your business, you may even make a lot of money out of it, but there are no guarantees. You may make a really useful piece of equipment for someone who really needs it, or you might create a few jobs, or you might ultimately change the way something is done. You might fail completely, of course, but that's not the end of the world.

By the end of this book you will have seen different ways to take an invention forward, have enough information to decide if you want to set up a company and have some insight into the risks involved.

What's the big idea?

This book is aimed at creative scientists who already have an idea or an invention and may be considering what to do with it.

Before we go any further let's just be clear that an 'idea' is different from an 'invention'. Going back to rocket scientists for a moment, a new design for a rocket would be an invention. The idea of a rocket is not an invention. An invention should indicate how an idea can be 'reduced to practice'—that is to say that an invention has to indicate by design how the idea can be made to work in practice. An invention may follow on from an idea but you need to have a bit more than just an idea to start a business. You need to have something to sell.

Scientists and engineers, by the nature of what they do, are routinely exposed to new ideas that could be potential inventions. While they clearly recognise the significance of these ideas in their particular area of interest, they often don't consider the application of these ideas in other areas or the possibility of creating saleable products from them. An invention that might be useful in a small way in one field could have a huge market in another area, perhaps one that is, on the face of it, unrelated to 'science'. The result is that a great many ideas that are potential inventions, that could be useful and could have high commercial value, go undeveloped and unexploited for years and sometimes are never developed at all.

The objective of this book is not to show you how to turn an idea into an invention—that's your problem—but to detail the steps that are necessary to turn an invention into something that has commercial value. If you have an idea, consider not just how to turn it into an invention but where the market for it might be. Be creative about ideas that you might have dismissed as they turned out not to have a use in your field. They might have a market appeal somewhere else. If you can reduce the idea to practice then you have an invention and you have the first step towards creating a business.

The next step is to make sure that the invention is, in fact, yours!

Who owns what?

Assuming that you have an idea that you have turned into an invention and you have now decided to do something with it, the first step is to determine who owns it. That might sound ridiculous—it's your idea and you've reduced it to practice. However, take a good look at your terms of employment. They may include a clause that says that anything you invent while working for your employer belongs to your employer.

In a company, generally any inventions made by employees will belong to the company. You might expect this to be the case in research-based companies, but it is in fact the case in many companies. This may even include inventions unrelated to your company's interests that have been made outside company premises. Make sure that you are completely open with your employer and discuss with them what you are doing or intend to do with your invention. In certain circumstances your employer may have no interest in the invention, particularly if it is outside the area of interest of the organisation you work for. If you work for a company developing chemicals for use in agriculture the company may not care if, working in your shed, you have come up with a novel component which improves the sound quality from your phone. In which case they may just tell you to go ahead. Make sure you get this in writing. If your employer is definite that they own the invention they may still not be very interested in the details and you may be able to negotiate with them for ownership, they may agree to own a small percentage of the invention. If your employer owns the invention and wants to keep all of it, this may not be all bad. Responsibility for what happens to the invention from then on will lie with your employer. For instance, your employer becomes responsible for all subsequent expenditure associated with patenting the invention and defending it from patent infringement. This could turn out to be a distinct advantage to you—as you will see in following chapters. You have the benefit of being named as the inventor.

If you work in a university it is likely that the university will own your invention, but it is also likely that everything you need to formalise the existence of your invention will already be easily and practically available to you through the university. Universities nowadays have a lot of experience of protecting and commercialising inventions and you should feel free to make full use of that experience. Most universities now have a technology transfer officer whose job it is to deal with precisely these issues. They will be able to clarify your position as an inventor in relation to your employment contract with the university. It is highly likely that the university will own any invention made by a member of staff and may also own the inventions of research students as well. Many universities encourage spin-out companies and could offer valuable support.

The importance of ownership

The reason why establishing ownership of your invention right from the start is so important is to do with protecting what you have. In the following chapters we will look at how to determine whether an invention can be protected or not and the different methods of protection available. In the meantime it is important to understand why you need to protect your invention.

This book is about the creation of IDEs—Innovation-Driven Enterprises. IDEs are businesses started by entrepreneurs (for instance, you) that are driven by innovation. Innovation is the process of commercialising an invention, i.e. how it can be exploited to give it commercial value. You start with an idea, reduce it to practice and turn it into a product that can be sold. It is in the turning of the invention into a product where the innovation lies. An IDE's most important asset, therefore, is the invention from which its innovation will be derived. It needs to be protected so that no-one else can exploit it. The most common way to protect an invention is to patent it. The patent constitutes the intellectual property of the business. It might be its only asset for quite some time.

It is not just who owns the invention that is important, you also need to determine who the inventor is and if there are any co-inventors. A great many inventions have had input from more than one person. The inventor is the person who contributes significant creative input into the invention. A co-creator is anyone who has made a creative contribution to the invention that is described in at least one claim of a patent application (more later). These are issues that have to be carefully considered before proceeding further.

It might help to consider who is not an inventor:

- Someone who builds your invention according to your specification and design is not an inventor.
- The person you report to (your boss) is not automatically a co-inventor.

These points are important. A patent may be declared invalid if an inventor is excluded from an application. It is also not allowed for someone to be named in the patent application who does not qualify as an inventor. It is not unknown, for example, for a head of department in a university or company to be named as an inventor due to their position, when in fact they have made no novel contribution to the invention. This could invalidate the patent.

The reason why you need to get this right from the start is that patenting an invention (as we will see later) is a time-consuming and lengthy process, the cost of which can be significant. It is also worth realising that only about 3 in 100 granted patents ever end up as successful commercial products[1]. You may already be thinking that you'd rather not bother with patenting, but don't despair. Patenting is essential for scientific entrepreneurship. When a patented product becomes commercially successful the rewards can be significant.

Here is an example, which is perhaps an extreme one when we're talking about start-ups, but one worth quoting. A few years ago Kodak, the company that invented the digital camera, went bankrupt. Yet their patent portfolio of over 1000 patents was sold to various companies for over $500 million. So how do you arrive at a valuation like this?

WIPO (the World Intellectual Property Organisation) mention four factors that help determine the value of a patent.

1. The importance of the patent
   Breakthrough patents which can be applied to a number of new areas of technology, such as Edison's light bulb or the photocopier, have very high value. Such patents protect the owner from competition for a long time over large sectors of industry and can be worth billions. On the other hand, patents which make only an incremental difference to existent technology are the least valuable, for example, adding a voice to a plastic toy doll. So, how a

[1] (Stuart West, intellectual property lawyer based in Walnut Creek, California quoted in Marton Dunai, 'More inventors try to market products,' *Oakland Tribune*, September 5, 2006)

competitor views the nature of a patent will determine what they are prepared to pay for it.

2. The market
   Another significant factor in determining the value of a patent is the size of the business opportunity that the invention presents, i.e. what are the sales that can be achieved and for how long while the patent is in force.
3. The patent term
   Patents have a maximum term of 20 years and, therefore, afford the owner a monopoly potentially of 20 years. However, certain products can take a long time to progress from invention to launch. Medical products not uncommonly can take 8–10 years so that the monopoly period left is now about 10 years. Further, a patent nearing the end of its term is likely to itself meet competition from other novel technologies which will reduce its value.
4. Prior art
   When applying for a patent you are required to describe the 'prior art', that is you need to reference other patents that are similar to yours and then indicate why your invention is novel. The number of patents in your area of innovation will affect the value of your patent. It is evident that if a product based on your invention is one of many such products the customer will have a wide choice of products which consequently reduces the value of every patent in that area. On the other hand, a stand-alone patent, i.e. one with few or no competitors and, therefore, a monopoly over a large customer base, will command a much higher premium.

The costly and lengthy nature of patenting is why you might be pleased to find that the university you work for will own the invention and therefore be responsible for the patent. Let's say that an invention patented by a university is successfully commercialised and the income from it is received by the university in the form of royalties. This royalty income is usually distributed between the university and the inventor, with the larger percentage going to the university. This might seem a bit unfair when 'the university' has not contributed anything to the invention itself, until you realise that the university as the owner of the patent has to pay the annual patent renewal fees out of their share of the royalties. These renewal fees may need to be paid for 20 years. Even worse, the university as owner of the patent has to deal with any infringement of the patent and bear the legal costs. This could be extremely expensive. It is not surprising that the university usually takes a larger percentage of any royalty income received.

The next question should be: does the invention have potential?

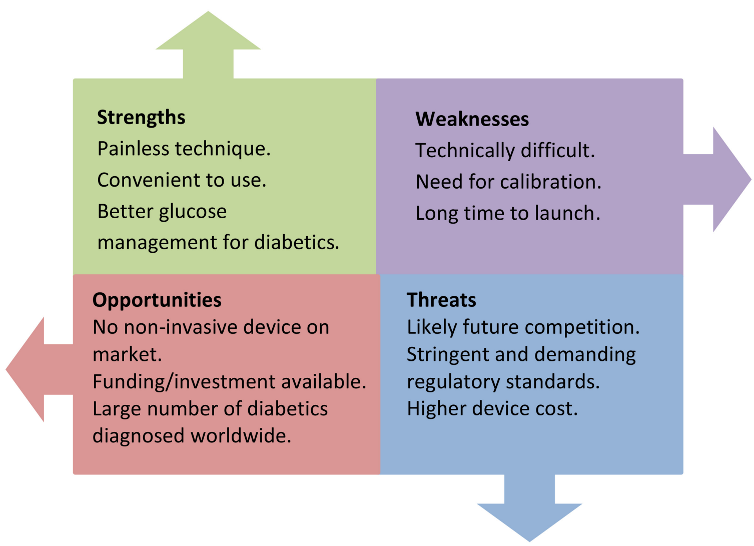
Will it work?

How would you know? You may think it's the best invention in the world but there may be such significant obstacles in the way of bringing it to market that it's not worth pursuing. What can help is to conduct a risk/benefit analysis.

Take, for example, the potential development of a non-invasive blood glucose device. At the present time diabetics prick their fingers to obtain blood samples to find out their blood glucose concentrations. This can be painful and means the measurements may not be taken as often as would be beneficial. An alternative approach is to develop a non-invasive device which measures the blood glucose concentration without the need for drawing a blood sample. A risk/benefit analysis might look something like this:

Benefit	Risk
Huge business opportunity: 200 million diagnosed diabetics worldwide.	Technically extremely difficult to produce a reliable instrument.
Funding is available via grants, and investors show interest.	The need to regularly calibrate the device.
No current competition.	Long time to product launch.
Acceptance of the proposed instrument by potential customers is highly likely.	Potentially significantly higher device cost than the currently used devices.

Another way of expressing the risk/benefit factors of your invention is to present its strengths and weaknesses in a SWOT (strengths, weaknesses, opportunities and threats) analysis. A SWOT analysis is a method used to evaluate the chances of success of a product or enterprise. Strengths and weaknesses are internal factors and opportunities and threats are external. A SWOT analysis of the non-invasive glucose instrument project might look like this:



- Strengths: these are factors that will give the invention an advantage over others.
  Examples of strengths are patents, brand names, cost advantage, access to distributors.
- Weaknesses: these are factors that put the invention at a disadvantage compared to others.
  Examples of weaknesses are no patent protection, high costs, lack of distribution networks.
- Opportunities: possibilities for the invention that can be exploited to its advantage.
  Examples of opportunities are an identified customer need, new technology, need stimulated by legislation.
- Threats: external factors that can significantly reduce the chances of success of the invention.
  Examples of threats are competitive products, new regulatory requirements that affect the products.

The way to use a SWOT diagram is as a thought experiment to systematically list all the positives and negatives in the enterprise. This should help you to make the decision whether to go ahead with an enterprise such as a start-up company.

Do you want to start a company?

There—we've said it: 'start a company'. We'll accept that you would like to take your idea and turn it into something tangible, but do you want to run a company? We can go into the practicalities of starting a company later in the book, but for the moment consider whether you see yourself running a company that may employ a number of people. If the answer is 'yes' you do want to start a company, an important question to ask yourself is 'why'? You might think these are the same reasons as being an entrepreneur, but they are not. You can be an entrepreneur without starting a company. There are many reasons for starting a company but make sure that you've examined yours carefully to avoid being misled into having unrealistic expectations. Let's consider the reasons people give:

- Being your own boss. Yes, certainly, starting a company may enable you to run the operation your way. But the flip-side of that is you'll be responsible for your decisions and if the business fails it will be your responsibility to deal with the consequences. In your own company you'll have to work with others as a team, a skill not everyone possesses.
- Financial gain. There is no guarantee that a company will make money, let alone a lot of money. But it is possible. The idea of starting a company to be better off financially is clearly attractive but remember that this is in no way guaranteed. Also, the success of a company can mean different things to different people—the profit it generates, the number of jobs it creates, or the benefit it brings to the scientific community or to your local community. Many small innovation-driven companies make an impact worldwide.

Whether you ultimately decide to start a company is probably determined by ‘acceptable’ risk, as has been described. You may never want to get involved in a high risk/high reward start-up IDE. It may be that you are a creative scientist with an entrepreneurial inclination but with no desire, for whatever reason, to start your own company and be responsible for employing other people. What, then, are your options?

In the course of this book we will examine the different ways in which an invention can be exploited, from licensing a patent to deciding to start a company and many options in between. We will look at how an IDE can raise money and how to estimate how much money needs to be raised. We will explain how to assess the business opportunity that an invention presents and how to write a business plan to make the most of that opportunity. We will not, by the way, tell you how to run a company on a day-to-day basis, there are many other books that can help you do that.

What we ‘will’ ask you is, having taken the decision to start on the exploitation of your invention, how will you finish it? In other words, what is your ‘exit route’? We will be taking a closer look at this question in the next chapter.

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