

# Starting a technology company

A guide for University of Cambridge staff and students

Edited by  
Miranda Weston-Smith and Peter Luebcke

cambridge **enterprise**  
commercialising University technology



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## How to use this book

‘Starting a technology company’ is a practical guide for anyone interested in setting up a science-based company. The book encapsulates Cambridge Enterprise’s collective skills of starting strong businesses with University researchers, and reflects the expertise of external contributors who have also gained their business experience in a commercial context.

We hope this book will give you the information you need to decide how you’d like to take your business ideas forward. It is divided into three sections of four chapters:

**Starting off** deals with evaluating your business ideas and looking at your personal objectives as well as the company’s objectives, and building a team.

**Getting going** covers the mechanics of starting a company and includes information on writing a business plan, intellectual property, and funding.

**Keeping going** gives a brief overview of product development and manufacturing, sales, keeping your accounts in order, and taking advantage of learning, mentoring and networking opportunities.

There are suggestions for further reading and research at the end of many chapters and, for University of Cambridge staff and students, you can contact Cambridge Enterprise at any stage of your project for advice.

### Good luck!

Miranda Weston-Smith  
Peter Luebcke

[www.enterprise.cam.ac.uk](http://www.enterprise.cam.ac.uk)  
Tel: +44 (0)1223 760339

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**UNIVERSITY OF  
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www.enterprise.cam.ac.uk  
Email: enquiries@enterprise.cam.ac.uk

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This book provides general preliminary pointers from the perspectives of individuals from outside and inside the University of Cambridge. It does not necessarily represent the views of the University. Specific advice will be needed on particular transactions.

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## Foreword from Cambridge Enterprise

**Teri Willey**  
**New Director**



Teri Willey

Cambridge continues to be the home of world-changing science, just as it has been for hundreds of years, but bringing these breakthroughs to the market can be a challenge.

This book provides an introduction to key topics and valuable insights in starting a science-based business and I hope it inspires you to take your ideas forward and to consider working with our experienced team at Cambridge Enterprise. The Cambridge Enterprise team works with faculty and students to assess market opportunities, secure intellectual property protection and negotiate partnering arrangements. Our staff has experience in helping to form over 100 companies in life sciences, IT, electronics and new materials, bringing in entrepreneurial management, and working with private and institutional investors from Cambridge, the UK and around the world.

We are grateful to all who have helped Cambridge Enterprise in bringing companies forward and we are delighted that many of these outstanding Cambridge entrepreneurs have shared their business acumen and personal experiences in these pages. By doing so they have added enormous and unique value to this book. We also thank Lita Nelsen, Director of the MIT Technology Licensing Office with which Cambridge Enterprise has an active partnership, for sharing her views and experiences which reflect the US perspective.

I hope that once you have read this book you will feel inspired by the challenge of bringing science forward to benefit the wider world. More than this, I hope you will be confident that, with a thoughtful approach and good advice, a new business venture can be both an effective and an exciting way to accomplish this. I wish you every success.

**Preface on behalf of the sponsor,  
The Cambridge-MIT Institute  
Professor M J Kelly, FREng, FRS**

In the following pages, you will find a step-by-step guide to starting up a technology company from within the University of Cambridge. However, its value goes further, as much of this guide will also be applicable to those starting up companies from other universities in the UK.

The guide is the initiative of Cambridge Enterprise, of the University of Cambridge. It is based on the experiences of Cambridge Enterprise staff who support many individual students, faculty and several teams through the process of forming a company around a piece of technology. Key points in the text are developed and highlighted by accompanying case studies and commentaries from experts.

I am very pleased that during my three-year tenure as Executive Director, the Cambridge-MIT Institute (CMI) had the opportunity to get involved with this highly worthwhile project. The University of Cambridge and the Massachusetts Institute of Technology (MIT), in response to an invitation from the UK Chancellor of the Exchequer, established CMI in 2000. Since then, it has been developing projects and programmes in support of its mission: to impact the UK economy in terms of competitiveness, productivity and entrepreneurship.

CMI has been trying to energise the entire innovation ecosystem, including developing and delivering education programmes that encourage even greater innovation by our alumni; integrating knowledge around research into emerging technologies; and more deeply engaging universities with industry in the process of knowledge exchange. This guide goes to the heart of this agenda.

I hope very much that budding entrepreneurs find this guide useful, and that they will report back to the authors on their experiences.



M J Kelly





# Part 1

## STARTING OFF

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### 1 How do markets work?

Tony Wilson

*Tony Wilson runs his own consultancy and coaching business, helping Cambridge technology-based companies to develop marketing and selling strategies. Tony has a PhD in physics from Cambridge University and 25 years of experience working for international high-technology companies.*



Tony Wilson

***How do you discover the market for what you plan to offer? How big will that market be? Which part of it should you go for? This section is written from the business-to-business (B2B) perspective, but for business-to-consumer (B2C) operations the principles are much the same.***

#### **Market strategy**

What many people fail to appreciate is that real customers in the market will not usually care about the clever technology; they only care about what the product or service will do for them or their businesses. It is a good assumption that nobody will want to buy your product or service unless it solves a real problem in a way that is more effective (but not necessarily higher-tech) than the available alternatives.

Therefore, a vital early step is to find out about the market, preferably by talking with potential customers (ie with relevant individuals from within potential customer companies). This process yields two benefits:

- You find out how the market works and what the real problems are, which enables you to develop not just a technology, but a solution for the market-place.
- You begin the process of educating the market about your ideas/products, thus working towards early sales. (See Chapter 10 for the sales perspective.)

Founders of companies tend to be overly concerned about giving away their technological secrets. You don't need to be. Remember that, at this point, you are mainly concerned with letting people know about your solution, not your technology.

As well as doing market research about your potential customers, both as companies and as individuals, it is wise to find out about the competition. You need to know who they are, what they do, how they make money, how good their products are and why people buy them.

Bear in mind that even if there are no direct competitors, you are still competing against anything that offers the customer an alternative solution or an alternative use for their limited funds. Here are three types of indirect competition to your solution to a business customer's problem:

- The customer can solve the problem by developing an in-house solution. For example, if the problem is manufacturing throughput, they may be able to hire extra staff instead of buying your automated processing system. If the problem is the integration of two databases, they could have their own IT people write the code instead of buying your software.
- The customer can adopt a different working practice that makes the problem irrelevant. For example, if the problem is electromagnetic radiation interfering with the signals on a communications network, the customer can decide to use optical fibre instead of copper wire, thereby removing the need for your interference-proofing solution for the copper wiring.
- The customer can decide to live with the problem because they have only limited money available and judge that they will get a better return on investment from spending the money on something else than from spending it on your product/service. For example, a company may decide to tolerate poor yield from a process and invest the cost of your process-improving solution in corporate entertainment instead.

The idea, then, is to identify those parts of the market where you will be able to offer a product/service which is clearly differentiated from the competition and offers customers a compelling reason to buy from you.

Mainstream customers will be, on the whole, distrustful of your innovation. Their purchase decision-making process will pay significant attention to the potential downside of the transaction and they will perceive risk. What if it doesn't work? What if the young supplier (you) goes out of business? What if the industry standardises on something else?

Customers will seek reassurance on all of these questions, not from you but from their peers and from the opinion-leaders in the marketplace.

### **Whom to target?**

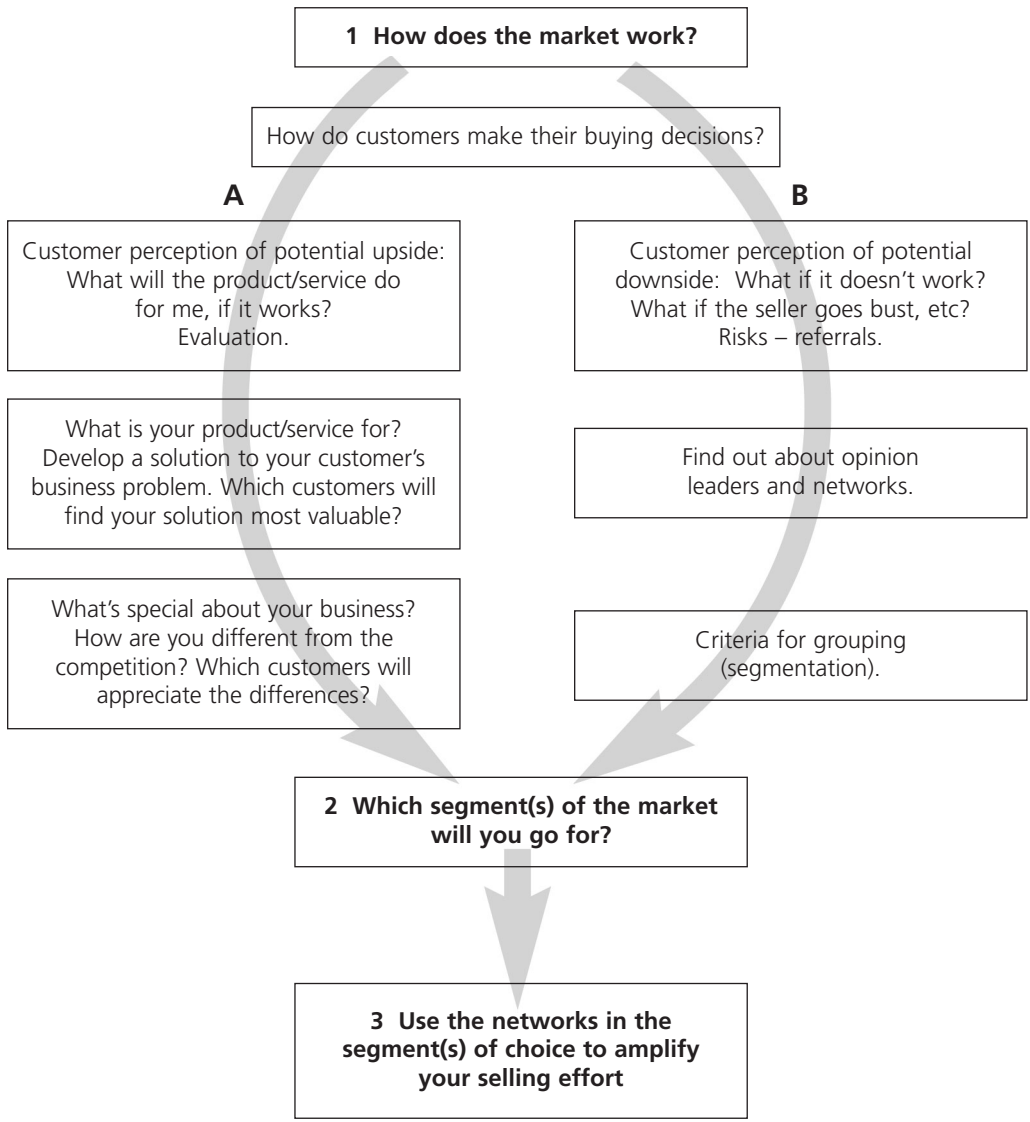
You need to identify the opinion leaders in the market segments that interest you, engage them and get them on your side. If you can do this, your sales efforts with customers in the range of influence of each opinion leader will meet with better-than-average success. Because of the influence of opinion leaders in technology markets, it is often worth investigating whether you could actually define your market segments in terms of them.

For example, an electronic design consultancy (ABC Engineering) was wondering how to develop its business. ABC had had previous success with clients in a number of different industries of different sizes and in different areas of the UK, but with no clear pattern as to which 'segment' they should try to expand into. When they looked at how their clients typically made their buying decisions, they recognised that clients very often sought guidance about potential suppliers from well-connected individuals. Having previously tried various sales approaches with little systematic success, ABC made contact with a well-known local professor of engineering to make sure that he knew of their existence and recognised the value of what they were offering. New business rapidly flowed from the resulting introductions.

This also suggests a route for future business development for ABC Engineering, via similar professors in other universities rather than into specific industries.

It is certainly not always the case that one could or should define segments in terms of opinion leaders. But it is often a possibility worth investigating, because it can lead to automatic, free-of-charge business advantage, as it did for ABC.

**Key steps in forming a market strategy**



To get from **1** to **2**, you need to consider both of the indicated routes in parallel. The first one **A** is about how good your value proposition is, and the second one **B** is about how you should take into account the market networks in order to reduce customers' perceived risks. Then at **3** you can use the networks to magnify your chances of sales success in your chosen market segment(s). Reminder: This is written from the business-to-business (B2B) perspective, but for business-to-consumer (B2C) operations the principles are much the same.

### Further information

Some market research websites:

[www.dnb.com](http://www.dnb.com)

The website of D&B, global business information providers.

[www.applegate.com](http://www.applegate.com)

A directory of manufacturing and technology companies in the UK and Ireland.

[www.kellysearch.com](http://www.kellysearch.com)

A listing of products and services.

[www.jup.com](http://www.jup.com)

The website of JupiterResearch, which 'provides unbiased research, analysis and advice, backed by proprietary data, to help companies profit from the impact of the Internet and emerging consumer technologies on their business.'

[www.acnielsen.com](http://www.acnielsen.com)

The website of the market research firm, ACNielsen.

[www.idc.com](http://www.idc.com)

The website for IDC, which provides 'market intelligence, advisory services, and events for the information technology and telecommunications industries'.

Chapter 10 of this book: 'Selling your products'.

Gouillart, Francis J, and Frederick D Sturdivant, 'Spend a day in the life of your customers', *Harvard Business Review*, Jan-Feb 1994, pp. 116-125. Useful background reading on the importance of understanding what your customers are trying to achieve.

Rogers, Everett M, *Diffusion of Innovations* (New York, Free Press, 2003).

## 2 Value-creation models

Shai Vyakarnam

*Shai Vyakarnam is Director of the Centre for Entrepreneurial Learning at the University of Cambridge where, with a staff of ten and access to over 200 entrepreneurs and professionals, he runs over 26 courses and programmes for some 1300 participants each year. He is a director of several small and growing businesses and is Visiting Professor at Nottingham Business School and the University of Reading.*



Shai Vyakarnam

***You've got an idea and you think there's a market. But there is more than one way to start creating value with that idea. The choice depends on your temperament as well as on your access to resources.***

### Personal goals

You will find that you want to create something that will suit your lifestyle or your circumstances. If you want to be in control of operations, have few employees, and be flexible with your own time and resources, you might opt for a 'lifestyle' business in which your primary value will be created through cash flow. You might then choose to invest that cash flow in other ventures, reinvest it in your business, or create other forms of savings. You will be dependent on the cash and growth in the business to provide you with the value for all your effort.

On the other hand, you might want to create a business with the capability of growing rapidly, which means that you might have to give up some of your shares and control, manage more complex work situations, deal with investors, allow plenty of scope for travel overseas, and spend long hours on the road.

This may seem like a stark choice and you may have the capacity to find something in between, but look around at local role models and see what they do. Your value-creation options will depend on this personal choice.

### Business goals

Your next decisions concern how your business approaches its chosen market. The two main routes are called: 'soft' and 'hard'.

The 'soft' approach to market entry is for new entrepreneurs to build credibility and experience and get an understanding of the way the market works. With this approach, you get going with some form of consulting business, which (in theory) you can start from your bedroom with little more than a phone and a laptop. In practical terms, you also have to find clients, register your website, and so on, but the risks are certainly lower than they are with the hard start. But, as Dr O'Donovan points out on in the case study below, selling consulting services in order to raise money for product development can delay that development.

The 'hard' approach is the higher-risk approach. The underlying assumption is that you need a great deal of financial resources, a strong team and a global market with significant potential demand. With this set of assumptions, you pursue the objective of raising considerable sums of money from venture capital and other sources. The expectation is that the business will grow at 'rocket speed' to enable investors to realise value through some form of exit – ie, the sale of their shares in the business, either to some other business or via floatation on the stock market.

## **Business Models**

Your next round of decisions revolves around three business models. Your choice of model, or models (they are not exclusive of each other), will have an impact on the final value you create. Your choices are:

### **Licence your idea**

You, or someone else, may have to make further investment in order to prove that the technology works and that there is a market for it, but you can expect a slice of the value that is created through the commercialisation of the idea by your licensees. It is a lot of work to find the right licensees. You will need good legal advice on your contracts, on the protection of your intellectual property and on the obligations on all sides.

### **The 'go it alone' model**

This approach comes in many flavours, from 100% ownership by you and your team to various forms of diluted ownership with co-investment by other firms and people. Going it alone poses the highest risks, so you must be fully committed to the business, but you can also expect the greatest rewards if it all works out over the life of the business.

### **Joint ventures or alliances**

This business model reduces some of the risks of the 'go it alone' model, but can be complicated to set up. You will need to find a company that is willing to co-develop the technology or the market and with whom your ideas have a good fit. It has to make sense for everyone. Both the 'go it alone' and the joint venture business models fit teams who are experienced in business and have a desire to grow a large business for a large return.

### **Summary**

When you evaluate your idea, you will think about these issues together, and these decisions will recur as your business develops. For example, many biotechnology companies develop potential new medicines and then license them to pharmaceutical companies. An example of a joint venture developing a new product would be the shared flights in the airline industry. The availability of finance will influence much of what you do (see for example Chapter 7 on looking for funding).

## VIEWPOINT

**Phil O'Donovan**

**Co-founder and Commercial Director, CSR plc**

**[www.csr.com](http://www.csr.com)**

***Phil O'Donovan has worked for nearly 30 years in the telecommunications industry in both small and large companies. Phil now works with the founders, boards and management of both venture-backed companies and those seeking to make investments.***



Phil O'Donovan

Cambridge is a pleasant place to live and a great place to start a technology company. Cambridge University itself, the many technology consulting companies that have moved to the area, the many young (and more mature) people with original ideas, the local providers of capital, and the wealth of legal, patent, intellectual property (IP) and accounting advisors, make Cambridge one of the most fertile regions in the UK to found and grow a technology company. There are ample role models. People from your college or living in your road are people just like you who have already helped to create one or more successful technology companies. Incidentally, a first career with one of the local technology consulting companies provides a solid grounding in the development, costing, planning and effective presentation of complex propositions.

Starting a technology company may be viewed from a number of viewpoints:

### **Team**

Find a partner or partners whom you trust and get along with (you will be spending much time with them over the next few years) to share the thinking, planning and other responsibilities associated with starting your company. Two people make a sufficient starting team, three is good and more than four is probably too many. Creating a company and attracting funding to it can be a lonely task, especially for the first time.

Core skills required in the first year will be creating the 'product', followed by identifying customers and making sales. These skills must be clearly visible in the founding team. Leadership is crucial and if an obvious single leader does not appear within the founding team, then he or she must be recruited before or shortly after first-stage funding is secured. It is also important to identify the remaining key management gaps and agree to fill them within a reasonable period. The skills required to grow the company change with the growth trajectory of that company and may be added as needed. However, there are some skills, notably in systems software and manufacturing, that are not in abundance in Cambridge; recruitment will be necessary from outside the region. Start as if you mean to continue; set high standards from the first and stick to them.

### **Focus**

Be very clear about the business model. For technology companies, the available models are (1) product development and sale, (2) services delivery and (3) IP licensing. There are pros and cons to each of these models.

#### **1 Product development and sale**

Growing a successful products business requires more capital than growing a services company. Products businesses are more risky, as the company is unlikely to get a second chance if the first product fails to sell in sufficient quantities and with an adequate margin. However, the rewards can be great if the product is successful. The fabless semiconductor business model – where the design of silicon chips using electronic and embedded software design expertise is undertaken in the Cambridge region whilst the chip manufacturing is performed elsewhere (often in the Far East) – has served my company, CSR, and a number of other local fabless semiconductor companies very well over the last ten years or so.

## **2 Services delivery**

It is less risky to grow a services company, but growth will be slower. A simple rule of thumb is that staff numbers will need to double in order to double company revenue.

## **3 IP licensing**

This model has proved very successful in Cambridge, with ARM leading the way by licensing micro-processor cores to silicon chip companies. IP licensing is very competitive and there often does not appear to be room for more than one large player in each market sector. If you choose this business model, it is important to ensure that you are able to follow through with succeeding generations of IP.

A start-up company will find it difficult to mix business models. A common mistake is to attempt to develop products as well as to deliver consulting expertise. Selling the time of key staff members whilst attempting to develop a product will delay introduction of that product and, consequently, will also delay the early adoption and commercial success of that product.

## **Novelty**

It goes without saying that the new offering must be sufficiently different to be attractive to clients or customers! Companies fail for many reasons, but high on the list are the following: The product is not sufficiently novel, the intellectual property (patents etc) embodied in the product is not defensible (ie, a competitor could steal it), or the product is launched before the market has developed. New markets are generally slower to take off than all parties expect.

## **Market**

Financiers like to back companies whose offerings have a significant degree of novelty. If the company is product-based, then the market should be at an early stage of exploitation, should have the potential to be large and should be global. If the company delivers services, then the services should allow the customer to achieve a desired end result either more efficiently or more effectively than was previously possible. Entering a mature market with an insufficiently differentiated offering is a common reason for a new business to fail. It is important to be first to market, as this will allow the fledgling company to shape customer expectations, to charge a premium and to obtain first-mover publicity.

Adequately addressing these four areas – team, focus, novelty and market – early in the life of the new technology company will ensure that raising a first round of finance is not too difficult. For capable teams with sound propositions, raising capital is always possible and some local companies even managed to raise funds shortly after the popping of the 1998–2000 dot-com bubble. Most successful technology companies raise three or four rounds of finance prior to either a flotation on the public financial markets or the sale of their company.

In summary, it will be necessary to convince the first-round financiers that the team is credible, the ‘product’ is novel, there is a large global market and the overall proposition is sustainable. The rest is all about flawless execution and maintaining focus!

Finally, do not ponder too long. Go out into the marketplace and do it.



### 3 Building a team

Jack Lang

*Jack Lang is a serial entrepreneur and business angel with high-tech and internet companies based in Cambridge, where he is Entrepreneur in Residence at the Centre for Entrepreneurial Learning and a Bye-fellow of Emmanuel College. He is the author of The High-Tech Entrepreneur's Handbook. His latest venture is as co-founder of Artimi, making UWB wireless chips.*



Jack Lang

**People are the most important asset of any business. How do you build a team and whom do you need in the early stages?**

#### Formation and evolution of the team

What is critical for the start-up and early performance of the business is that the founding team members share the same vision of the business's direction and growth.

Key team factors that affect its performance at the venture-creation stage are:

- Depth of experience and expertise: prior industry experience, prior work experience, team size, previous joint work, team tenure.
- Breadth of experience and expertise: variation in functional background, variation in industry experience, variation in team tenure.

Once the founding team has come together, there will be an evolution towards a more fully-formed team which can address the issues of the development of the venture. This occurs through processes such as communication and sharing the vision for the business, building trusting relationships, clarifying and formalising roles through the business plan, and developing the structure of the company.

Venture capitalists rarely consider a business proposal based on the talents of a single individual, but rather on the skills and experience of the entire venture team, although investors will also look for a driving force that brings the team together. You need to recognise that:

- Teams are not built over weekends. It is hard work and has to be sustained.
- The recruitment process can never be perfect.
- Getting it really wrong can be terminal for the venture.
- A team is more than a group of individuals.
- Therefore it is crucial to integrate recruitment with development issues right from the start.

#### The roles of the key team members

Informal roles may be sufficient before the venture actually starts, but as the business idea develops, more formal roles will need to be created. Some of these are summarised on the following page.

US name	UK name	Role
Chair	Chair	<ul style="list-style-type: none"> <li>• Senior figure; old wise head.</li> <li>• Experience and contacts; part-time.</li> <li>• Major dispute resolution.</li> </ul>
CEO	Managing Director	<ul style="list-style-type: none"> <li>• Primary role is to find the money and manage investor relations; administration; style setting; dispute resolution.</li> <li>• Formally responsible for the day-to-day running of the company, formulating policy proposals and implementing the board's decisions.</li> <li>• Usually has a marketing rather than a technical background and often is not a founder member.</li> </ul>
CFO	Finance Director	<ul style="list-style-type: none"> <li>• Keeps the books and is usually a qualified accountant; prepares management reports and budgets; advises on fundraising; may also act as company secretary (keeps board minutes, official papers and shareholder records) and run the company administration.</li> <li>• May also have additional roles of office management and quality control.</li> </ul>
CTO	Technical Director	<ul style="list-style-type: none"> <li>• Inventing new things; development.</li> </ul>
COO	Production Director	<ul style="list-style-type: none"> <li>• Running the factory and the distribution chain.</li> </ul>
VP Marketing	Marketing Director	<ul style="list-style-type: none"> <li>• Deciding what and how to sell.</li> <li>• Market communications (public relations, advertising, website etc).</li> <li>• Market and competitor information.</li> </ul>
VP Sales	Sales Director	<ul style="list-style-type: none"> <li>• Selling; customer relationship management, including after-sales support.</li> </ul>

### The board of directors

The above people will form the basis of the company's board of directors, but there will generally be other non-executive directors on the board. These are usually business or industry experts and frequently include a representative from the lead investment company or venture capitalist. Directors have responsibilities to the company, their fellow directors, shareholders, creditors and employees; the legal aspects of these duties are discussed in Chapter 4, 'Forming a company'.

### Scientific advisory board

This is another area where credibility can be added to companies involved in science and technology. This board does not have a legal role as the board of directors does. Instead, it advises on the scientific direction of the company. Many companies try to engage very senior figures from that particular area of science onto the advisory board.

### Finding the people

Recruitment is generally expensive, difficult and time-consuming. However, the company is the people in it. Before you begin recruiting, spend some time figuring out the kind of person you want. You need to go well beyond a descrip-

tion such as 'good verbal and written communications'. Write a half-page pen-portrait of the ideal person for this job. What background would he come from? What experience would she have? Where would he expect his career to go? Why would she want to join your team? What would he be earning at present and what would you have to do to attract him? It might not be just salary; better prospects or a good options package might tempt your ideal candidate.

By far the best way to find new people is through personal recommendation. You probably know, or know of, the ideal person, or else one of your team or your investors has worked with (or for) the ideal person. Go talk to them. If they can't fill the role, they may know someone who can. This is another occasion when networking really helps. If you are still at University, ask your fellow students or recruit from the appropriate department – technical people need people from the business school and vice versa.

Some companies value internal networking so highly that they run bounty schemes to reward staff who introduce new employees. In such cases, the person who made the introduction is typically paid some months after the engagement of the new employee; for example, at the end of his or her probation period.

If your own staff cannot recommend or find new recruits, you can employ an agency. However, agencies are typically quite expensive, charging 15-20% of first-year salary. Their effectiveness can vary greatly; they are usually most effective for recruiting contract and temporary staff.

For more senior posts, headhunters are effective and will minimise publicity, if this is an issue. However, they are very expensive and, again, their effectiveness varies, as does the breadth of their address books. Headhunters are more appropriate for established or already funded companies. Pick your headhunter as carefully as you would pick the candidate you are hoping to recruit.

Advertising is an alternative or complement to the use of agencies or headhunters and need not cost you much. Advertisements placed on your website, or in relevant technical or local newsgroups, can often be low-cost and effective. Advertising in the local or national press is more expensive and will require careful wording for maximum effectiveness. In these days of skill shortages, advertising is more than just informing people that you are recruiting; part of the purpose of advertising is to sell the company to potential employees. Like any advertising, it is useless unless you have a means of collecting, filtering, grading and replying to the responses.

### **Building the team**

A team is more than a group of people; you need to take conscious action to build and maintain communications and trust between team members. Regular meetings at a fixed time each week ('Monday morning prayers'), off-site reviews ('away days') and informal activities ('beer nights') all help people to understand each other.

### **Management and dispute resolution**

As a manager, you have three roles to play:

### **Leader**

- Inspire the other members of your team and sell them your vision and goals. As in selling any proposition, one key is to understand the individual team member's own personal goals.

### **Resource acquirer**

- Obtain the resources, such as investment, that your team needs in order to function.

### **Disturbance allocator**

- Even in the best managed teams, things don't always work out the way you expect. As a manager, you have to inform your team of changes and deal with the consequences.

When the team shares a common vision, disputes are minimised. Of course, there will still be debates as to the best way forward. While there is no one right way to manage, a good manager will listen to everyone's opinions (not just those who shout loudest), make a decision and then explain it, with reasons, to those involved. Again, disseminating the decision is a selling job and the buck stops with the manager. A good manager, while consulting and involving the team, must finally resolve disputes. On the other hand, if a manager tries to micro-manage, making every small decision, the team is bound to fail.

*'There go my people. I must follow them, for I am their leader.'*

M. Gandhi, quoting Alexandre Ledru-Rollin, 1848.

### **Further information**

Lang, Jack, and the Cambridge Entrepreneurship Centre, *The High-tech Entrepreneur's Handbook* (London, FT.COM/Prentice Hall, 2001).



Jonathan Milner

### **VIEWPOINT**

**Jonathan Milner, Group Chief Executive, Abcam plc**  
**[www.abcam.com](http://www.abcam.com)**

***Jonathan Milner set up Abcam prompted by frustrations in finding high quality, high information antibody reagents for his research in the University. Jonathan founded Abcam in 1998, along with co-founder David Cleevely, and has overseen the expansion of the business which listed on the AIM market in November 2005.***

Here are my four steps to success:

#### **Step 1**

Examine whether or not you have had an 'entrepreneurial seizure', meaning that you truly believe that your idea will change the world and you have made the decision to pursue it to boom or bust. This will be in spite of the protestations of friends, family, work colleagues and other sensible sane people. Mad people will tell you to do it.

## Step 2

Unemotionally and critically examine the type of person that you are and the skills that you have. Then visualise what skills will be needed in order to take the company forward and recognise where there are weaknesses\*. Each of us has a different balance of the following types: Scientist, Entrepreneur and Manager. For a technology company to get off the ground, all three will be needed in about equal balance.

The Scientist will need to make sure the product is up to scratch and to continually innovate and produce things. However, a company run by an all-Scientist personality will never achieve its true potential, as this type will want to have his hands on everything the company invents or makes. The company therefore will stay small or will fizzle out as the Scientist burns out.

The Entrepreneur will have vision and leadership, will convince people to invest and will convince talented people to join the venture. Entrepreneurs have zero attention to detail and are notoriously stubborn. A company run by an all-Entrepreneur personality will generate great excitement and publicity but then go quickly and spectacularly bankrupt.

The Manager will need to be able to prioritise, manage time, meet deadlines, organise systems, deal with things like cash-flow and accounts, and recruit and administer other people in the company. All of these things are ghastly to the Scientist or Entrepreneur types, and a company that is run by an all-Manager personality will slowly be packed away in a very neat, ordered and tidy fashion. It will become the Land of the Living Dead.

## Step 3

Decide how best to plug the gaps in your own mix of these skills. Most often there will be no money at first with which to recruit into the skills gaps. Therefore the entrepreneur will need to develop the missing skills quickly himself or herself. (In my particular case, I had zero management skill, so I had to quickly and painfully develop this.)

## Step 4

Make sure that you have a good mentor. (I had David Cleavelly, who coached me with management skills.)

Finally, you need luck, but you can largely bias this your way by being persistent. You have to have some luck at some point in order to get your idea and company off the ground, eg, meeting the right people, being in the right market at the right time, etc. However, I believe that even the unluckiest person can make it through persistence. (If you buy enough lottery tickets you are bound to get lucky sometime.) As Chris Evans (of Chiroscience fame) put it, 'NEVER GIVE UP'.

\* These ideas have been adapted from Michael Gerber's book, *The E-Myth Revisited: Why Most Small Businesses Don't Work and What to Do About It* (New York, HarperCollins, 1995).

## 4 Forming a company

Helen Jackson and Rosemary Boyle



Helen Jackson

*Helen Jackson co-leads the University of Cambridge's Legal Services Office, which provides advice for the whole of the University and its departments. Helen worked in private practice in London and was then an in-house lawyer for Philips Electronics for nine years before joining the University.*



Rosemary Boyle

*Rosemary Boyle is a solicitor in the University of Cambridge's Legal Services Office. Rosemary worked originally in private practice and subsequently for 20 years as an in-house local government lawyer, concentrating latterly on outsourcing and other commercial contracts.*

***Find out the legal essentials of how a company works and some of the key decisions you will need to take. Remember to take personal taxation advice.***

### Introduction

Why form a company? If you are thinking of establishing a new business, sooner or later you have to choose a legal structure for it. A company is an attractive proposition because:

- It is a separate legal person, so that risks are taken by the company rather than by you as an individual.
- It offers limited liability, so that if things go wrong within the business, your personal assets are not at risk (unless you have offered them as security for the company's debts).
- It provides clarity for investors and lenders. Investors can see that the company has the assets needed to move forward; lenders can see clearly what assets are available within the company as security for the money they are lending.
- It may offer tax advantages to you personally, but this is something on which you will need to take personal tax advice.

A company is formed by registering certain documents with the Registrar of Companies. Every company must have (1) a Memorandum, which sets out the objectives of the company and its share capital, and (2) Articles of Association, which set out how the company is to be run. Both documents are matters of public record, open to the public through Companies House. Once your company is anything other than dormant, you will also need to appoint auditors and submit audited accounts annually to Companies House. You may purchase companies ready-formed from company formation agents over the Internet and this costs under £100. Alternatively, you might wish to ask a firm of lawyers to set up the company with tailored Memorandum and Articles and this may cost around £500.

### Legal and taxation advice

If you are setting up a company, you do so as an individual rather than as an employee of the University. It is therefore advisable to address legal and taxation issues and take professional advice at an early stage to ensure that the company

is structured so as to meet your particular needs and family circumstances. The lawyers and tax advisers within the University cannot provide personal advice.

From a taxation point of view you need to consider:

- How your shareholding should be held from your family's point of view, and whether any shares should be, eg, in the name of your partner or children.
- How you might best obtain income from the company in the future, for example, as an employee, a consultant or simply through dividends?
- Schedule 22 to the Finance Act 2003 created a potential for income tax being charged in relation to the acquisition of shares in spin out companies ('employment related shares'). However as a result of the Finance Act 2005, it is possible to structure the transactions so that, in certain circumstances, shares in spin outs may be issued to staff of research institutions without adverse tax consequences. Legal and tax advice is needed to ensure the arrangements are structured correctly. See the section on University spinouts in the Inland Revenue's 'Employment Related Shares Manual'

<http://www.hmrc.gov.uk/manuals/ersmmanual/ERSM100000.htm>

### **How does the company work?**

The key people for any new company are the shareholders, who own the company, and the directors, who are appointed by the shareholders to run the company. To start with, these may be the same people. As the business progresses and other investors become involved, the investors will have a greater say in how the company is run.

The shareholders make decisions by way of a General Meeting. Certain major decisions (eg, increasing the share capital or changing the Memorandum and Articles) can only be decided by the shareholders in a General Meeting; in certain circumstances, a 75% majority of the shareholders is required by statute. The shareholders also appoint and remove the directors, but once the framework within which the company is to operate has been established, the power for running the company from day to day is vested in the board of directors.

The directors' role differs from that of shareholders, because directors are required legally to act *bona fide* in the best interests of the company. As a director, therefore, you cannot take decisions which benefit you personally, or some other business with which you are involved, to the detriment of the company. Where you have a conflicting interest in some matter to be decided by the board, you have to declare it to the other directors. The Articles of the company may provide that a director must abstain from discussion or voting on any issue where there is a conflict of interest.

### **The Shareholders' Agreement**

The shareholders can set out in an agreement how they will run the company. The key rights to consider in this document are:

- **Members of the board**  
Who determines who is on the board? At the outset, if you want to be on the board, you need to make sure that the Shareholders' Agreement gives

you the right to be on the board or to appoint another person to be a director in your place. You also need to consider the rights of other shareholders and which of them, individually or in combination, might have a controlling shareholding and thus the ability to control the board.

- **Voting rights**

What decisions require unanimity? Assuming that you are not in a position to control the board or the company, it is important that decisions which are critical to you are stated to require unanimity, so that you have a right of veto. Examples might include changing the business of the company, entering into substantial commitments, and raising external investment.

What are the voting rights? This is an extension of the question of what requires unanimity. Different shareholders may have different classes of share, with different voting rights in certain circumstances. With a small company, you may also want to think about how to resolve deadlock. This may involve a mechanism whereby, if matters have reached a point where the participants cannot move forward together, one shareholder can require the others to buy him or her out or be bought out themselves.

- **Exit routes**

What are the exit routes? Right at the start, think about how you and your fellow shareholders might plan to leave the company if you wish and realise the investment you have made. Most Articles restrict the freedom to transfer shares, for example by requiring that the seller must first offer the shares to fellow shareholders at the same price offered by an external purchaser. This gives shareholders as a group the opportunity to stop a third-party shareholder being imposed on them, while allowing each individual shareholder some freedom of action.

Finally, you need to think about what happens to shares on the death of a shareholder. It is normal to provide that the other shareholders have the opportunity to buy out the beneficiaries of the deceased shareholder.

### **Directors' duties**

If you are a director, your overriding duties are:

- Act in good faith for the benefit of the company – and this may sometimes be at variance with your duties in the University.
- Act with skill and care.

In addition, you will risk personal liability for losses incurred by third parties if you exceed the authority which has been given to you (eg, by signing an agreement without the required unanimous shareholder approval or by allowing the company to continue trading while it is insolvent, which is wrongful trading).

### **Further information**

**Companies House** [www.companieshouse.gov.uk](http://www.companieshouse.gov.uk)

The main functions of Companies House are to (1) incorporate and dissolve limited companies, (2) examine and store company information delivered under the Companies Act and related legislation and (3) make this information available to the public.



## VIEWPOINT – UK/US entrepreneurship and universities

Lita Nelsen

*Lita Nelsen is the Director of the Technology Licensing Office at the Massachusetts Institute of Technology. Ms Nelsen was the 1992 President of the Association of University Technology Managers; has served as advisor to the National Institutes of Health, the National Academy of Sciences and the Office of Technology Assessment; and currently serves as the intellectual property advisor to the International AIDS Vaccine Initiative.*



Lita Nelsen

### **US/UK university entrepreneurship: Some differences**

'Start-ups' vs 'spinouts'? The real difference is geography. New entrepreneurial companies formed from university technology are generally referred to as 'start-ups' in the US and 'spinouts' in the UK.

There are significant differences – in the climate for spinouts and in university policies – between the two countries, between regions in each country and between universities in a given region, so the differences described below will be 'on the average' or 'at MIT' rather than fully accurate in all instances.

### **Access to experienced investors and management**

It is generally believed that, in the US, there is more venture and angel capital willing to invest in early-stage companies and early-stage technology and that angel and venture investors are more competent to guide the formation and early growth of companies. This may be true, but it varies widely by region. In Boston, the Bay Area (centred around San Francisco) and San Diego, it is far easier to get new technology (including biotechnology) companies started than in any other place in the world. But in most of the Midwest and the South, it is just as difficult as in northern England.

On the whole, there is a wider pool of senior management with small technology company experience in the US.

### **'Hands on/Hands off'?**

A few US technology transfer offices are actively involved in forming companies, writing business plans, finding management, raising capital, etc, and may even take board seats. At the other end of the spectrum, MIT and many of the other larger research universities take a less active role. Their formal role is as 'licensors of the intellectual property', though they also perform a number of critical informal functions such as helping inventors conceptualise the business model, introducing them to sources of angel and venture capital and sometimes to entrepreneurs and other managers, directing them to sources of advice and services both on and off campus, and other functions performed more formally by 'hands on' universities and incubators.

The 'hands off' model avoids many difficulties with conflicts of interest at all levels of the university. However, its success at MIT is dependent on a 'nurturing community' which is readily available in the Boston area, where a half-century-long history of entrepreneurship means that there are many experienced investors, managers, role models, lawyers and other service providers to help new companies get started. Within MIT, a number of other entities, such as the Venture Mentoring Service, the 50K Student Business Plan Contest, the MIT Enterprise

Forum and the Deshpande Center, provide additional resources to support the birth and growth of new companies, rounding out the nurturing community. It's a lot harder when such a community does not exist!

### **Managing conflicts of interest**

Most of the leading US universities are very concerned about conflicts of interest (both real and perceived) between their academic missions and their entrepreneurial endeavours. They are anxious to protect their long-range basic research focus from intrusion by 'product development', to protect their reputation for open dissemination of results, and to protect themselves and their faculties from accusations of using government funds or government-funded facilities for private gain. This fear of the government's scrutiny and of the censure of university-based entrepreneurial activities is far greater in the US than in the UK, where such mixing of academic research and entrepreneurship is explicitly encouraged in the name of economic development. US universities thus tend to have stricter – and more absolute – policy rules preserving the freedom to publish, prohibiting companies from 'embedding' within a university, and restricting faculty from becoming involved in the management of a company they have founded.

### **Summary**

Although US state universities may feel pressure to aid local economic development, the primary motivations for most of the private US universities to engage in start-ups is to get the technology developed for public use and for national economic development, to feed the entrepreneurial ambitions of faculty and the entrepreneurial education of students and, in some cases – and perhaps unrealistically – to earn significant financial reward. Both the hands-on and hands-off models have their advantages and disadvantages. In both cases, being open about the drivers and managing the potential conflicts of interest are important for success.

### **Further information**

*An Inventor's Guide to Technology Transfer at the Massachusetts Institute of Technology*, which you can download as a PDF file from <http://web.mit.edu/tlo/www/>.

## Part 2

# GETTING GOING

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### 5 Writing a business plan

Walter Herriot



Walter Herriot

***Walter Herriot is the Managing Director of St John's Innovation Centre in Cambridge. Walter's role is to help early-stage high-tech businesses with their business plans, both for fundraising and for internal purposes. He also helps identify appropriate sources of finance and grants. Walter was the Cambridge Businessman of the Year in 1998 and has been awarded an OBE for 'Services to Businesses in the East of England'.***

***Your business plan is a lot more than your ideas and ambitions written down on paper. It is a necessary document which will either help or hinder your attempts to raise outside finance.***

#### Introduction

Even at an early stage, it is useful to commit an internal business plan to paper rather than trying to juggle all the business variables in the mind. This should help the business to be well managed from the outset; everybody knows what the business is trying to achieve and timely decisions can be taken when the plan is reviewed. The internal plan becomes more formal as the business develops; a specific plan, based on the internal plan, may be necessary in order to raise outside finance.

At the outset, an internal business plan should cover:

- Your personal objectives.
- The product or service your business is going to sell.
- What needs to be done to achieve the following objectives:
  - developing the technology
  - carrying out market research
  - recruiting people
  - acquiring other resources (equipment, premises etc)

Based on the above, the internal business plan should be reviewed continuously and simple budgets and cash flow forecasts should be produced so that finance is available to achieve the short-term objectives.

As the business matures, the internal business plan will become more complex. The overall purpose of planning is to enable the key people to manage the operation so that its objectives are achieved. As an internal document, its style and content reflect the purely internal needs of the business. When need arises to attract external shareholders, bank finance, or non-executive directors, then the plan's style and content will have to become more formal.

It is important to understand that the needs of equity investors and bankers are different. The plan's emphasis will also depend on the stage of the business. A start-up needs to emphasise its people, its product and the quality of its market research, whereas a more developed business needs to emphasise its track record.

Once the business plan is being aimed at external readers, it needs to be structured and should cover at least the following:

- company and management background
- staffing structure
- market (and market research)
- manufacturing or production methodology
- product and details of any intellectual property
- financial forecasts (including how much money is needed)
- competition
- risk and reward for potential financiers
- how the product will be sold
- time scale and benchmarks, particularly for overcoming barriers to entry in the market

If the plan is to raise equity, then the business's unique selling point must come across. It is extremely important to introduce the plan with an Executive Summary, written after the plan is finalised. The Executive Summary has to attract attention and should be short (two to three pages) but sharp, bringing out the business's key selling points. It should be written so that an investor with no specialist knowledge can quickly understand the business and see 'what is in it for him'.

We see many business plans at St John's Innovation Centre. Their most common weaknesses are:

- Management fails to sell the concept in the Executive Summary.
- Management fails to give the best account of its experience and capabilities as a business team.
- In proposals for knowledge-based businesses, the technology tends to dominate the plan, to the detriment of the business itself.
- The market research is not relevant and robust enough to justify the optimistic projections. There is no substitute for primary market research.
- Reams of computer-generated financial printouts are provided, but the assumptions on which they are based are not properly stated or explained.
- Competition (actual and potential) is ignored.
- In proposals seeking equity, the plan does not take into account the needs of the investors or the exit route. In proposals seeking bank finance, the security offered is not made clear.

In my experience, the vast majority of such plans submitted to venture capitalists or bank managers are not overstated but understated; they do not do justice to the businesses they propose. Once potential investors or lenders form a negative perception of your business from your business plan, it is often impossible to change that perception, however much the plan is subsequently improved. 'You don't get a second chance to make a first impression'. One group of entrepreneurs, in their anxiety not to appear to be overstating their case in presenting their business plan to a Venture Capitalist (VC), focused on the most obvious and immediate market for their proposed product. It was so evident, however, that an affordable product of that kind had many other potential markets that the VC wondered how these entrepreneurs could fail to see them. He concluded – incorrectly but justifiably – that they lacked the vision to make the most of their idea.

Writing a business plan can be an extremely time-consuming activity. Business colleagues whose judgement you know and respect can be a useful sounding board, as can Business Links, Cambridge Enterprise and the business support team of the St John's Innovation Centre.

It is important that external plans are reviewed before they go public, to ensure that the business is presented in the best possible light. Once you have written your plan, it is often very difficult to 'see the wood for the trees'. Do not be afraid to take quality external advice... and 'good luck!'

**Further information**

Stutely, Richard, *The Definitive Business Plan: The Fast-Track to Intelligent Business Planning for Executives and Entrepreneurs* (Financial Times Prentice Hall 2001).

## VIEWPOINT

Julian White

Chief Executive, genapta Ltd

[www.genapta.co.uk](http://www.genapta.co.uk)



Julian White

***Julian White co-founded genapta in 2001. Since then the company has grown organically to become a leading player in applying next generation optics to life sciences, including drug discovery and genomics.***

Setting up a company and getting things moving is a relatively simple process, but give yourself plenty of time. First, I would set the company up using the skills of an accountant. Lawyers are great for when things need to be refined or when things go wrong, but an accountant is best for forming the company and allocating the initial shares. Make sure that share allocation is done fairly and very early on, long before investment starts clouding the picture. Do not allow investors to mess with the Memorandum and Articles of the company. They have done this many times before and often try to bury little time bombs which can explode later, often to the detriment of everybody, including themselves. Get all accounts electronically recorded from the beginning; this can be as simple as recording all expenditures on a spreadsheet.

The scientific founders should find somebody to do the day-to-day running of the company (accounting, VAT, legals etc) ASAP, as this work is best done by experts in those fields, leaving the founders free to focus on the technology, the market opportunity and fundraising. The company's unique selling point (USP) is the information in their heads and it is a pity if this is blocked out by the hassle of filling in a VAT return. Choose your bank manager carefully and get to know him or her very well; bank managers have your best interests at heart and can often be more useful than early-stage investors.

What often makes it appear complicated is that a number of stages in the company's growth and development are either uniquely important or unimportant to the particular company in question. Don't assume that all the stages apply in all cases. Essentially, there are a number of steps that need to be taken to establish the company as a legal entity and getting it into a form where it can trade, such as registration, initial allocation of shares, registration for VAT etc. On top of this there are a number of other things that the company may need to do at various stages such as establish a share option scheme or arrange director liability insurance etc which should be prioritised when appropriate. For example a share option agreement isn't needed when only the founders are working for the company and directors liability insurance is only needed when a certain type of company is actively trading. If you're not active in the relevant areas or you haven't sold anything yet, then you don't need it.

In summary, trying to jump all the possible hurdles at the beginning, sometimes unnecessarily can lengthen the setup time considerably, for no discernible overall benefit, and sometimes to the detriment of the venture.

## 6 Intellectual property

Miranda Weston-Smith

*Miranda Weston-Smith is a Technology Manager at Cambridge Enterprise. She licenses technology (mostly in the biosciences), helps new companies get going, and develops good practice in technology transfer for the Cambridge-MIT Institute. Miranda's previous experience includes five years with a seed capital fund and eight years in technology transfer consultancy.*



Miranda Weston-Smith

***Your company's freedom to develop and sell products, processes and services depends on intellectual property rights. How will your company establish and manage its legal right to use technology? How much will it cost to obtain a patent?***

### **What can intellectual property rights do for your business?**

Intellectual property rights are important because they define and put a legal boundary around a technology and very often, together with the people, are the key assets of a young company.

Intellectual property (IP) consists of ideas, information and knowledge that can be protected by laws on Intellectual property rights (IPR) such as those concerning patents, copyright, design rights and trademarks. Obtaining patent and some trademark and design rights require registration with a national or international authority, while others such as copyright do not.

The World Intellectual Property Organisation's definition of IP is: "literary, artistic and scientific works; performances of performing artists, phonograms and broadcasts, inventions in all fields of human endeavour; scientific discoveries; industrial designs; trademarks; service marks and commercial names and designations; intellectual activity in the industrial, scientific, literary and artistic fields."

The first owner of IPR is the person who invents, writes or designs the IP, or his/her employer or client (depending on the contractual arrangements), and the owner can transfer its rights to others. However, having the rights doesn't mean you have to use them (and someone else may own IP that dominates yours), and so IPR are 'negative rights', in that the commercial advantage to the controller lies in the ability to stop others using the IP without agreement. Of course, this benefit in turn depends on how long it takes to develop products and how long they are on the market. In the fast moving information technology sector, copyright protects many products and much software is obsolete before a patent could be granted (four years). In the biotechnology and pharmaceutical industries patents protect new chemical entities, and extensive safety trials means it takes at least seven years to get new medicines on sale. So, the intellectual property strategy for your company is linked to your company's target market. Take care when telling others about your company's IP, using a confidentiality agreement when needed.

At Cambridge Enterprise, we make a best-guess on how companies will develop products from University technology and then instigate appropriate IP protection and transfer.

## Patents

Patents describe inventions and their functional and technical use in products and processes. Patents protect, for example, chemical compounds, medicines, materials and machines, and some computer programs. Discoveries, scientific theories, aesthetic creations, and plant or animal varieties cannot be patented. Methods of treatment and surgical procedures may be patentable in some countries, but not others.

A patent for an invention is granted by a government for a limited period, generally 20 years. The idea is that the patent owner has a competitive advantage for a time; in return the public gains knowledge of technological developments which it will eventually be able to use freely once the patent has expired or lapsed. For a patent application to succeed, the invention it describes must be:

- **New**  
It must not have been made public in any way, or form part of the current state of knowledge.
- **Inventive**  
It must involve an inventive step, and not be obvious to someone with a good knowledge of the area.
- **Industrially useful**  
The application must explain how the product or process works and can be used in industry.

A patent document must have a description of the invention, possibly with drawings, with enough detail for a skilled person to put the invention into practice.

With about one million patent specifications published globally each year, it is crucial to find out what has already been patented or published both as regards the 'new' criteria but also because using the technology might depend, in part, on using someone else's patent. If this is the case, permission to use this dominating patent is needed from the owner, and in many cases this restriction on 'freedom to operate' is worrying for investors. It's useful to discuss the results of patent searches with professional patent agents. Here are a couple of useful websites for checking published patents:

- [www.espacenet.com](http://www.espacenet.com)  
Europe's network of patent databases
- [www.delphion.com](http://www.delphion.com).  
A website of information on US patents

## Timing

Very often, people use this route for obtaining a patent:

0 months	File application in UK
12 months	File Patent Cooperation Treaty application
15 months	International Search Report
18 months	Application published
30 months	File application in national territories, eg, US, Europe, Japan



There is then the Preliminary Examination Procedure, and grant in due course in countries if the examinations are successful. It takes about two to three years for patents to be granted after the filing in national territories but this varies from country.

### **Costs**

Filing a patent application at the UK patent office is free, but preparing a patent specification is a skilled task for which we engage a patent agent. The drafting fee is around £3,000–£6,000, depending on the complexity of the invention. The total cost to obtain a patent granted in Europe, the US and Japan is normally £50,000–£80,000 and there are renewal fees to be paid for the patent's life. Also one product may be protected by several patents, for example a new medicine might be covered by:

Patent 1	Product claims for a compound
Patent 2	New medical conditions treated by compound in Patent 1
Patent 3	Scaled-up product synthesis
Patent 4	Formulation of product, eg, special coatings

So, think about the cost of protection and the returns on the product your company will achieve.

### **Copyright**

Copyright protects the physical expression of an idea. It comes into effect as soon as a work is created and recorded and does not require application to an authority. Copyright protects, for example, literary, dramatic, and musical works, films, and computer programs and databases. Ownership of a work does not necessarily mean ownership of copyright in that work.

Computer software is protected as a literary work and shares the same period of protection – the life of the 'author' plus 70 years. Databases are protected in two ways: copyright if the contents and arrangement are original, and database rights restraining the extraction and use of the contents. Database rights last for 15 years from the completion of the database. But if the database is significantly modified during this time, the period of 15 years recommences. So a dynamic database which is continually modified will have a term of protection that is constantly being renewed.

### **Licensing IP from the University**

Most licensing we do at Cambridge Enterprise involves patents and software. The agreements typically cover:

- The intellectual property to be licensed
- The types of products the company will develop using the intellectual property, eg, medicines, diagnostics, materials, sensors or devices.
- The geographical area in which the company will manufacture and sell products.
- Responsibility for managing the patent(s) and dealing with infringement.
- The length of the licence: in the case of patents, this is usually 20 years.
- Annual due diligence reporting by the company on how it is bringing products to market.
- Financial compensation in the form of cash/equity covering upfront and annual fees, milestones and royalties on the sale of products.

Cambridge Enterprise's website has information on intellectual property and describes the technology commercialisation services available to University staff and students.

- [www.enterprise.cam.ac.uk](http://www.enterprise.cam.ac.uk)

### **Building an IP portfolio**

Companies often decide to protect their products by design rights and trademarks as well as patents and copyright. In IP terms, the 'design' of an article is its shape and appearance. Some design rights arise automatically on creation and sometimes they can also be registered to give a monopoly right. For example, the layout design of a semiconductor chip, or its topography, is protected in the UK under design right law and could also be registered. A trademark is a distinctive feature of a product (for example, a word or sign) which distinguishes it from similar products. The strongest way to protect a mark is to register it.

Companies generally establish data information and review systems for handling patents and their costs. For young companies, the approach tends to be more reactive to specific opportunities, and the need for IP protection may be as important to collaborative relationships and investor issues as it is to selling products.

### **If you're a University inventor**

If you're interested in commercialising your University research come and talk to us!

### **Further information**

- <http://www.patent.gov.uk/>  
The UK patent office.
- <http://www.intellectual-property.gov.uk>  
Information, resources, and links concerning intellectual property. 'We hope to bring you all the answers to your questions and all the resources you need to find your way through the IP jungle of Copyright, Designs, Patents and Trade Marks.'
- <http://www.european-patent-office.org/index.en.php>  
The European patent office.
- <http://www.uspto.gov/>  
The United States Patent and Trademark Office.

## 7 Looking for funding?

Peter Luebcke

*Peter Luebcke is the Business Creation Manager for Cambridge Enterprise working with University entrepreneurs to start and grow their new businesses. This involves everything from advising on funding types and sources to reviewing business plans and making introductions to industry-experienced people through business mentor programmes.*

*How do you identify the type of funding which is best suited to your business's stage of development? Do you need to give away equity for the money or would a straightforward grant be more suitable?*



Peter Luebcke

### Introduction

Money really is the lifeblood for a young and growing business. It enables a company to grow and meet the milestones it sets itself in order to develop in a credible fashion. This section addresses the types of funding which 'knowledge-based' or 'high-growth' businesses use. 'Lifestyle' or 'organic' businesses typically grow more slowly and are often fuelled from the start by selling products rather than by raising investment.

The following sections run in the order in which they are typically encountered and in which they are most appropriate in terms of stage of development. For basic information on, and links to, existing early-stage funding schemes, the reader is directed to the Cambridge Enterprise website ([www.enterprise.cam.ac.uk](http://www.enterprise.cam.ac.uk)). Cambridge Enterprise helps University entrepreneurs identify and access numerous types of funding and advises on the pros and cons of each type.

### Business plan competitions

An ideal launch pad for the enterprise newcomer. These schemes not only provide prize money, but will often be accompanied by workshops and mentoring to assist entrepreneurs in developing their plans. Prize money ranges from £1k to £100k, depending on the particular scheme and one's placing in the winners list. The criteria for judging – including technology, team strengths, intellectual property positioning and even likely exit routes – are usually similar to those used by professional investors. Many universities run business plan competitions and also funding bodies.

For example:

- Cambridge University Entrepreneurs ([www.cue.org.uk](http://www.cue.org.uk))
- Research Councils Business Plan Competition ([www.rcuk.ac.uk/businessplan](http://www.rcuk.ac.uk/businessplan))

### Government grants and assistance

'The best free money you'll ever get' was the way one entrepreneur described this form of financial support. However, ventures often need to 'match-fund' the contribution made by the government. 'Smart' awards are now called R&D grants and require from 40% upwards of the total project costs to come from the company; these matching funds must not originate from the public sector. Sources such as NESTA and winnings from the Research Council Business Plan competition, for example, are considered public funds and cannot be used as the matched fund contribution.

Government grants involve a lot of paperwork, but for those who have the time and perseverance, they can be an invaluable boost to a venture's early-stage growth. Other schemes to help the small business include:

- **Knowledge Transfer Partnerships**, formerly known as TCS, enable individuals to be funded to work in universities on company projects. ([www.ktponline.org.uk](http://www.ktponline.org.uk))
- **Enterprise Grants** are awarded if the business is located in particular regions of the country. ([www.dti.gov.uk/enterprisegrants](http://www.dti.gov.uk/enterprisegrants))
- **R&D Tax Credits** enable small and medium-sized enterprises (SMEs) to reclaim 24% of their spending on R&D. ([www.hmrc.gov.uk/](http://www.hmrc.gov.uk/))

### **Banks (debt finance)**

This is a very short section! It is highly unlikely that banks will lend money to an unproven business that has no product sales to date and is staffed by individuals with little or no track record. You are much more likely to get a personal loan, or an extension on your mortgage with your house acting as collateral, than a business loan. Most of the major banks participate in the Small Firms Loan Guarantee Scheme (SFLGS), but nearly all want to see some kind of track record of sales before they entertain the idea any further.

Having said that, banks can be very useful in providing business advice and basic health checks to new and growing businesses and in providing connections and networks for their clients.

- Small Firms Loan Guarantee Scheme: [www.dti.gov.uk/sflg](http://www.dti.gov.uk/sflg)
- General advice on loans and grants: [www.businesslink.gov.uk](http://www.businesslink.gov.uk)

### **Angel investment**

According to a Bank of England Report, 'the National Business Angel Network estimates that 18,000 angels invest around £500m in 3,500 companies every year'. Business angel funding is one of the best ways ventures can raise the funds they require to complete the fundamental milestones for growth at the early stage. Angels invest for equity ownership in the business and typically prefer to have a say in the day-to-day activities of the venture. Indeed, it is preferable that angels bring 'smart money' rather than 'dumb money' to the table. The former refers to relevant business experience being provided as part of the package and the latter refers, as one might imagine, to money only.

The amount of equity sought varies wildly, as does the amount invested. Angels often invest as syndicates to spread the risk and share the 'due diligence' efforts of assessing new investment opportunities. One should note that there can often be a mismatch between angel funding and subsequent venture capital (VC) funding in that the presence of too many stakeholders can 'muddy the waters' for subsequent VC investment.

- British Business Angels Association: [www.bbaa.org.uk](http://www.bbaa.org.uk)
- The Great Eastern Investment Forum: [www.geif.co.uk](http://www.geif.co.uk)

### **University sources of funding**

The University Challenge Fund and the University Venture Capital Fund invest in 'knowledge-based' ventures arising from expertise and research carried out in the University's departments and affiliated institutions. These funds typically invest small amounts at the proof-of-principal stage up to 'seed' investment of £250k. For example, Pathfinder investments (from the University Challenge Fund) at the £10k level allow simple prototype building and other proof-of-concept work to be carried out; they may also cover patenting costs. The Challenge Fund can invest a total of £250k, which is called 'seed' funding due to its order of magnitude. (Typically, £100k–£500k could be considered 'seed' funding, but there is no strict level.)

It is generally difficult to find investors that can invest as little as £10k and can see the bigger vision ahead clearly enough to justify early-stage amounts while the company is unproven and high-risk. The University Challenge Fund and the University Venture Capital Fund provide a well-targeted financial launch pad for new ventures and have invested in 15 companies from 2000 to 2004. Details of the University Challenge Fund are at: [www.challengefund.cam.ac.uk](http://www.challengefund.cam.ac.uk).

### **Other seed-level sources**

There is a noticeable scarcity of non-angel sources of funding in the £50k–£250k range. It is as easy to manage a large investment as a small one and while the return multiples may be higher for very early investors, the overall sums are much larger for the later stage investors. Also such seed level investments involve high risk and many man-hours of input to the company. One of the few sources of this level of funding is NESTA (National Endowment for Science, Technology and the Arts). NESTA is a popular source of funds as it can invest in a broad range of ventures and can think 'outside the box' when it comes to unconventional and 'blue sky' technologies. NESTA typically invests up to £100k in return for equity and/or as a convertible loan. They often invest alongside other investors to bump up the round to a seed level. Their network of mentors and advisers also makes them a helpful investor for those ventures needing additional business experience at the early stages.

- NESTA: [www.nesta.org.uk](http://www.nesta.org.uk)

### **Corporate venturing**

This is equity investment by corporations in new ventures, but with the added advantage of bringing customer understanding, marketing, and distribution infrastructure as well as money. Large corporations don't always have the flexibility to be innovative that start-ups have and will frequently look beyond their own walls for opportunities to diversify their product portfolios, but almost always keeping within their core strengths. Start-ups can get a valuable strategic partner, which also adds clout when trying to break into established markets. Many large corporations, such as Unilever, Johnson and Johnson, Motorola and Rolls-Royce, have venturing divisions that can invest in external start-ups or internally spun-out ventures stemming from their in-house R&D. For other investors along the way, the prospect of an exit route via a trade sale to the large corporation can be attractive.

### **Venture capital**

Perhaps the best known way of obtaining investment for knowledge-based high-growth start-ups, venture capital can invest from the seed round through to 1st, 2nd and mezzanine rounds (£1m–£30m+) and reasonably hope to achieve (typically) 15 times, 10 times and 5 times returns on their investment respectively. Since 2001, it has been harder to raise funds at the lower end of this scale; popular sentiment holds that it is easier to raise £2m than £200k. Companies looking for venture capital funding need to meet stringent health checks in order to be considered investor-ready. These health checks or milestones can usually be met only if pre-seed/seed funding has already been raised to do so. The ‘funding gap’ between, say, £50k to £1m is therefore a difficult one to fill and a company must ensure that as many of its essential tasks as possible have been accomplished – possibly fuelled entirely by grants, NESTA, business angels etc – in order to be attractive to venture capitalists.

- The British Venture Capital Association: [www.bvca.co.uk](http://www.bvca.co.uk)

### **Flotation/Public listings**

Increasingly, early-stage ventures are finding that raising finance via public listings is a viable option. For example, the Alternative Investment Market (AIM), set up by the London Stock Exchange for smaller growing companies, has raised a total of £10.3 billion for 1400 companies since 1995; the annual sign-up is increasing each year. OFEX is a flotation vehicle which covers multiple sectors and offers a way for start-ups to raise anything from £500k to £5m; it has been running since 1995. There are, of course, rules and criteria for companies listing on these markets; check their websites for more information.

- AIM: [www.londonstockexchange.com](http://www.londonstockexchange.com)
- OFEX: [www.ofex.com](http://www.ofex.com)

### **Further information**

Dorf, Richard C, and Thomas H Byers, *Technology Ventures: From Idea to Enterprise*, International Edition (New York, McGraw-Hill, 2005).

Tang, Kenny, Ajay Vohora, and Roger Freeman (Eds.), *Taking Research to Market: How to Build and Invest in Successful University Spinouts* (London, Euromoney, 2004).

## 8 Valuations of early-stage companies

Laurence John

*Laurence John is CEO of Amadeus Mobile Seed Fund, which provides seed money for start-ups in the mobile and wireless sector. Previously, Laurence worked in the mobile telephone industry, launching a number of mobile commerce ventures, and in the aerospace industry. Laurence has an MA in marketing, an MSc in optics and a BSc in physics.*



Laurence John

***An important early decision point for a start-up company involves raising money and company valuation. This section describes some of the areas for management to consider: why money is being raised, how much should be raised, and from whom; the process involved and the time taken; and metrics for valuation.***

### **Why raise money?**

It is important to consider the stage you are at and what type of company you wish to build. Consider first whether you wish to build a large or small company and the relative capital intensity of each option. Bear in mind that it might take greater than \$20m to build a software company, perhaps \$50m to build a fabless semiconductor business, and even more to build a substantial biotech company. These values can be sourced on the Web.

### **How much do I need and how much do I give?**

Small companies aiming to become consultancies, IP houses or small 'early-to-break-even' businesses may require little seed capital and will certainly require little follow-on capital. Your main consideration here is whether or not you should raise all you need in one go in order to get your business to break even. The business angels and government funding bodies will be looking at the robustness of your business plan and at how near you are to bringing in some revenue. Next, you need to consider the level of equity participation the angels will require; this will vary from 5% to 50%, depending on how strong and demonstrably valuable you and your business are.

If you are building a business to become a larger-scale business, business angels and certain specialist Venture Capitalists (VCs) may be your target source of funding for the seeds, but thereafter you will look to VCs for Series A funding and beyond. To succeed in raising money, it is very important that you understand, not only the overall capital needs of your business, but also how VCs work.

### **How do VCs work?**

Venture capital funds with £100m to invest in, say, 10 companies are looking for at least a 2x return on their fund as a whole. If we posit a £10m investment in each company, a 50% success rate and a 20% holding at exit, it follows that the VC is looking for each successful company to be worth £200m at exit. When you pitch for your seed funding, be sure to start making a case for how and when you will get to the necessary size.

If you work it back, you can look at public sources to see what revenue multiples or profit multiples have applied to your industry sector. Decide which types of businesses most resemble your future business, see how they have been trading over the past four years, and look at typical acquisition multiples. This is precisely what the VCs will do in order to value your company. If your sector trades at 2x

revenues and has no history of large acquisitions, it will rank differently than a sector with 5x revenues and frequent large acquisitions. Another consideration is the M&A (merger and acquisition) nature of your sector: Are companies bought early? If so, at what value? Typically, VCs will be looking for a 10x multiple (on exit – which can be after more than five years) on monies invested in a seed and pre-revenue-stage business, 5x on revenue-stage businesses, and 3x on businesses that may be close to breakeven and exit.

### **What is a seed stage for?**

Seed money should usually be used to reduce risk in a business: technical risk, IP risk, commercial (underserved need) risk, market size risk and risk within the team. If your company is to succeed in achieving Series A funding, let alone at a good valuation, it is essential that these risks be thoroughly addressed with the seed-stage funding.

### **Process**

What is the process for raising money and deciding on a valuation? After some initial horse trading, a deal's value is fundamentally a function of both appetites in the context of comparable deals. If a similar deal at a similar stage with similar market potential just raised £500k on a valuation of £1m, then your team should know this and use it in your negotiations. However, generating interest in your deal is vital if you are to achieve any valuation at all. It's like selling a car: Putting a price tag of £5k on your car does not mean that someone will buy it at that price.

### **Time scales**

Plan ahead. A simple convertible loan – ie, an investment of £25k to convert at a 25% discount to the next (Series A) round – might take no more than a couple of weeks to put together from a business angel group. However, you should expect a VC round to take longer because usually a more substantial investment is being sought. Plan for six-month timeframes, with legal alone taking perhaps three of these months.

### **Metrics**

Metrics and valuation techniques abound – P/E ratio, discounted cash flows, net present values and more – but they all make huge assumptions on levels of future revenues. For a start-up company, these assumptions will at best be guesses. Unfortunately, it comes back to size of business opportunity, stage and risks in your business, capital requirements of your business going forward, return expectations of your funding sources and – most importantly – comparable deals and appetite.

### **Value is not what you think!**

Look at the details of the deal on offer with great care. A straightforward x% for £y is fine but, often, option schemes, liquidation preferences, dividends, transaction fees, directors' fees and anti-dilution terms will be added to deal terms, most commonly in Series A and later rounds. These are standard and not to be feared, although they must be quantified and understood. Typically, a term sheet will detail all of these and no material deviations will take place once signed.



Lastly, valuations ultimately depend upon the exit value of your business. If you give away too much of the company at an early stage, your team will just not be motivated. However, if you get too greedy, you will either fail to raise money or, more likely, you will have to face a painful recalibration of the company's value at a later date.

### **Valuation at time of trade sale**

All financial investors make their investments with an eye for a return. This can only occur when the company achieves an IPO or is sold through a trade sale. The earlier an investment is made, the higher the required percentage return, in order to compensate the investor for higher risk and longer 'time to exit'. However, even later investors require an uplift in value when the company is sold and, ultimately, this is what drives 'investment round valuations'.

In the capitalisation table overleaf, the later rounds only occur in anticipation of the £80m exit price. If the anticipated exit had been smaller, a painful re-pricing would have occurred. Investors will form their view of likely exit values by looking at industry market data on revenue and profit multiples and M&A values for the relevant market sector. For the seed investors, the value of the company at exit, £80 million, is 64 times the value of their investment (see investment multiples). These investors put money into the company when the risk of achieving a successful outcome was high. For the later funders, eg, Series C, they invest when the exit is closer, so the risk is much lower. The multiple lift in value of the company is lower at x4, however the sums involved are considerably larger.

### **Further information**

Please see the venture capital glossary.

History of an investment									
Shareholders	Share purchase price/£	£ invested	shares issued	share	Round 1	Round 2	Round 3	Round 4	Exit value
Founders share of co.			1,000,000	100%	80%	44%	28%	22%	£17,600,000
Seed investors	1	£250,000	250,000		20%	11%	7%	5%	£4,000,000
Series A investors	2	£2,000,000	1,000,000			44%	28%	22%	£17,600,000
Series B investors	3	£4,000,000	1,333,333				37%	29%	£23,200,000
Series C investors	4	£4,000,000	1,000,000					22%	£17,600,000
Total shares issued			4,583,333						
Money invested		£10,250,000							
Company value (investment)			n/a		£1,250,000	£4,500,000	£10,750,000	£18,333,333	
M&A value of company									£80,000,000
Investment multiples (exit value/value of company)					64	~18	~7	~4	

#### Explanation of columns

Shares issued

£ invested/share price in £

Share – Round 4

shows the percentage change in shareholdings with the investment rounds

Exit value

The amount the shareholders receive when the company is sold for £80 million

#### Explanation of rows

Company value (investment)

The total number of shares issued up to that round multiplied by the share price of that investment round

M&A value of the company

Value of the company when it is sold, in this case £80 million

Investment multiples

Exit value/value of company at an investment round

## VIEWPOINT

**Sir Robin Saxby**  
Chairman, ARM Holdings plc  
[www.arm.com](http://www.arm.com)

***Sir Robin Saxby was involved in founding ARM in 1990 and joined the company full-time in February 1991 as President and Chief Executive Officer, becoming Chairman in October 2001. He was knighted in the 2002 New Year's Honours List. He currently serves as Deputy President of the Institute of Electrical Engineers, where he is also a trustee.***



Sir Robin Saxby

Make sure your team has – or has access to – all the experience required to get the job done. This means complementing your team with the best external advisors you can find for the money you have. Be persistent and be prepared to say no.

Build a strategy and a vision and make sure that your day-to-day decisions help you along the path to that vision. SWOT analysis is a very useful tool to help you build operational, tactical and strategic plans and create team 'buy-in'.

Bright people with energy can learn new skills quickly if they are led by someone of suitable experience, but a team is only as good as its weakest link. Be honest about the team's strengths and weaknesses. Learning by doing and iteration of plans is a good method for making progress.

Beware of involving third parties with conflicts of interest and alternative agendas. Only raise as much money as you really need, as customers expect less of a return on their money than shareholders. Evaluate time to break even and time to profit and cash generation.

Be ambitious – have a plan to be world leader in what you do – but be realistic.

Most of all, it must be hard work and fun. Keep a sense of humour. If you have highly political or dishonest people in your team, fix them or fire them. Measure everything at all times; plan and adjust continually over a one-day, one-month, one-year, three-year, five-year, and ten-year horizon.



## Part 3

# KEEPING GOING

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### 9 Product development and manufacture

Tim Minshall



Tim Minshall

*Tim Minshall is a Lecturer at the University of Cambridge Centre for Technology Management and is a member of the board of St John's Innovation Centre Ltd, Cambridge. He has managed a series of projects funded by The Gatsby Charitable Foundation to support the start-up and growth of new technology ventures.*

***How do you select the technical specification of a product and the resources you will need in order to put it on the market? Which products are most important to your company?***

#### Introduction

Decisions on what products to develop, when they are to be released, and how they are to be manufactured are critical for any product-based business. They can only be made with reference to a company's strategy, business model, available resources, and understanding of customers and markets. This section offers a quick overview of these decisions and when you need to access resources to make them.

#### Product development <sup>1</sup>

A good product is one that is:

- **Useful**  
It works well and functions as promised.
- **Usable**  
Its ergonomics and user interface are appropriate to those who will be using it and to how, where and how often they will be using it.
- **Desirable**  
Its aesthetics are appropriate for the market, users and usage environment.
- **Producible**  
It is capable of economical volume manufacture using appropriate production methods.
- **Profitable**  
It must result in sufficient business rewards, measured in terms of market share, gross margin, break-even, turnover or sales volume.
- **Differentiated**  
It must satisfy core user benefits in new ways, whether it delivers excellence through its physical attributes or through its related support services.

The development of a good product requires the stages shown in Figure 1.

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<sup>1</sup> This section is largely drawn from [www.betterproductdesign.net](http://www.betterproductdesign.net), which is described in 'Further Information' below.

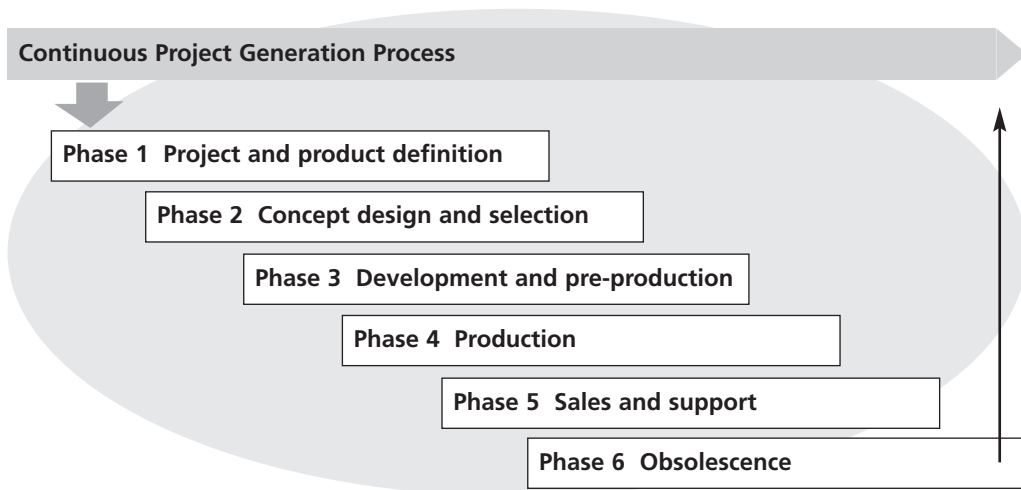


Figure 1. A generic New Product Development (NPD) process (Source: James Moultrie, Institute for Manufacturing)

### **Phase 0 – Continuous project generation**

Includes a range of ongoing ‘pre-project’ activities to ensure that a strong stream of new product ideas are generated, evaluated and screened. Such activities could include talking with current customers, researching possible new markets, scenario planning and brainstorming – especially bringing together marketing-focused and technology-focused members of the team.

### **Phase 1 – Project and product definition**

Establishes the commercial and technical viability of a project and the criteria for success. Leads to detailed product specification and a clear business case to justify further investment.

### **Phase 2 – Concept design and selection**

Aims to ensure a divergent search for possible solutions. It is during this phase that the product architecture and usability issues will be established.

### **Phase 3 – Development and pre-production**

Once an overall concept has been agreed upon, it must be translated into a reproducible and saleable product. It is vital that, during this phase, the product does not drift away from the original concept as detailed engineering and design decisions are made.

### **Phase 4 – Production**

The main decision here is whether the product is to be made in-house or out-sourced; this decision will be discussed in more detail below. Each option has pros and cons; the choice is highly dependent upon the nature of the product and the resources available to the business.

### **Phase 5 – Sales and support**

Establishes and manages systems to market, sell and deliver the product and to ensure after-sales care.

### **Phase 6 – Obsolescence**

As the product reaches the end of its life cycle, are there new products in the pipeline ready to be sold to customers? How will old products be supported after you stop making them?

**Manufacture**

When designing the product, attention also needs to be focused upon process design, ie, deciding how the product will be made.

**Make or buy? <sup>2</sup>**

One critical decision that needs to be made is: what to do yourself and what to get others to do (often known as the ‘make or buy’ decision). It is common for this decision to be made on the basis of short-term costs and current resources; in fact, it should be based on the company’s long-term aims. A good decision will require balancing your ability to do certain things with what is really important for your business. The chart below provides a structure for considering the alternatives.

		Importance to your business	
		High	Low
Your capability	Strong	Ensure that you can continue to do this yourself	Find means to exploit this – may lead to new opportunities
	Weak	Invest in this area, or find a trusted partner to work with	Get someone else to do this for you

*Figure 2.  
Simplified view of make versus buy decisions (Source: David Probert, Institute for Manufacturing)*

Figure 2 provides a simple and effective visual tool for mapping all the activities that are needed for making your product. They need to be reviewed regularly to ensure that you maintain the correct make-versus-buy balance in the light of changing conditions.

There are advantages to collaborating with other companies and getting them to do specific tasks for you. These include increased flexibility (your costs are kept variable rather than fixed), less capital investment, and the fact that you are left to focus on doing what you do best – your ‘core capabilities’.

However, there are also disadvantages. These include the need to devote time to managing your suppliers (a task which can easily become very time-consuming and complex), the loss of control over lead times, and the fact that you may be creating future competitors (by helping them learn about how you make your products).

<sup>2</sup> From: Probert, David, *Developing a Make or Buy Strategy for Manufacturing Business* (London, Institution of Electrical Engineers, 1997).

### **Do it yourself?**<sup>3</sup>

If you decide to do part of the production yourself, the system you design for this will need to consider:

- How can you balance supply and demand? Will you have sufficient flexibility of supply to cope with changes in demand?
- Should production be manual or automated? What are the effects of different choices of production technology?
- What types of jobs are created by your production system? Can you get the type of people you need to manage and run these activities?
- To which other companies do you need to link? How will you construct your supply chain? How will you manage relationships with these companies? Are local suppliers available, or will you be sourcing from around the world?
- How much investment will be needed to set up and run the production operations? Is such investment available?

Whichever decisions you take, they will need to be reviewed regularly to ensure you are doing the right thing as conditions change.

### **Further information**

#### **Useful resources for product development**

'Better Product Design' website – [www.betterproductdesign.net](http://www.betterproductdesign.net)

This site has been developed as a resource for the Good Design Practice Program, a joint initiative between the Institute for Manufacturing and the Engineering Design Centre at the University of Cambridge, and the Department of Industrial Design Engineering at the Royal College of Art (RCA) in London. The program aims to provide support to companies in developing and improving their product design capability as part of the new product introduction process.

*Speeding New Products to Market: A Practical Workbook for Achieving More Successful New Product Development*

This workbook 'provides practical steps for assessing and improving an organisation's New Product Introduction process'.

[www.ifm.eng.cam.ac.uk/ctm/publications/speeding](http://www.ifm.eng.cam.ac.uk/ctm/publications/speeding)

#### **Useful resources for manufacturing**

*Make-or-Buy: A Practical Guide to Industrial Sourcing Decisions Designing for Low-Volume Production*. Both books are available from the Institute for Manufacturing at [www.ifm.eng.cam.ac.uk/service/books](http://www.ifm.eng.cam.ac.uk/service/books)

Probert, David, *Developing a Make or Buy Strategy for Manufacturing Business* (London, Institution of Electrical Engineers, 1997).

Slack, Nigel, *et al.*, *Operations Management*, (Harlow, FT Prentice Hall, 2004).

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<sup>3</sup> From: Allwood, *et al.*, "Taking Technology to Market", course notes, University of Cambridge Engineering Department (2004); and Slack, Nigel, *et al.*, *Operations Management* (Harlow, FT Prentice Hall, 2004).



## 10 Selling your products

Fergus Pery

*Fergus Pery is a director of Creagan Bridge, which specialises in finding early customers and building sustainable sales processes for innovative software and telecoms businesses. Fergus has held senior sales and marketing positions for 12 years in global technology and software firms, including ABB, Danaher Corporation and The MathWorks. Fergus is a chartered engineer and a member of the Chartered Institute of Marketing.*



Fergus Pery

***The first salesperson for your product will most likely be you. This chapter helps you get a handle on what is involved in finding those elusive first customers and as with the section How do markets work? is written from a business to business perspective.***

### Introduction

Getting a firm grasp on how to sell is a critical rite of passage for new technology companies. Without sales there is no revenue and without a credible sales plan there is no business plan. Yet this unpalatable task is often fudged. For example, many early-stage business plans are noticeably scant when it comes to sales plans and tactics; statements like 'Q2 – hire sales manager' provide a useful fig leaf.

### The sales challenge

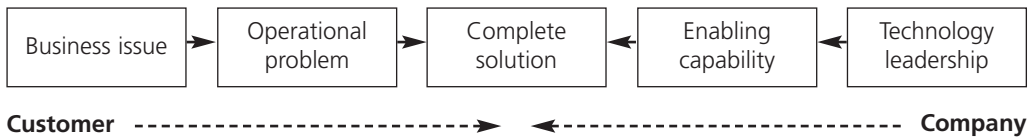
Young businesses don't have the luxury of a 'big company' sales machine with a well-managed sales force, clear target markets, established customers and proven sales tools. Also, they are looking for more than just customers; they need feedback on their product offerings, early reference sites and validation of selected target markets.

The sooner you start, the more business-critical benefits you can reap, such as:

- Confirmation that your target market selection is correct.
- A pipeline of possible early customers.
- Feedback on your product (which may affect your development priorities).
- An understanding of the value your products deliver and the likely purchasing process.

### The selling story

In the purchasing decision, there is usually no direct link between the technology and the business issue, so a technology-led sales message is unlikely to provoke any reaction from serious prospective customers (although it may attract a flood of interest from technology lovers who have no purchasing authority). By the same token, it is not normally necessary to reveal details about your technology in order to start selling.



*Figure 1:  
Customers buy  
solutions to  
operational  
problems*

To complete the links in the chain shown above, you need to construct a selling story which explains:

- The business issue you are addressing (this often includes defining the target market).
- The operational problem you are solving.
- The complete solution you are providing.
- The unique enabling capability that makes your solution possible/better.

First, you need to talk to any contacts you have in the target market(s) to get a handle on the business problems they face, the underlying causes of those problems, and the drawbacks of any existing solutions. Use this information to construct a selling story (as shown on the previous page in Figure 1). Then take your selling story and... try to sell it. Only by pitching your story in a real sales situation will you truly understand whether the story is compelling. Keep using the feedback from early pitches to refine the story (and possibly your target market selection) – this refinement is an iterative process.

Once you have pitched your selling story to a handful of decision makers in your target market, you will have clear ideas of how you can start selling your product. Along the way, you will also have made good progress towards understanding:

- The prospecting process – whom to sell to, how to get their attention.
- The purchasing process – how buying decisions are made, likely success rates.
- The purchasing cycle – how long it will take for interest to convert into cash.
- The value of your solution – how much you can charge for it.

In fact, you will have obtained almost all the information you need to construct a robust and credible sales plan and, in all probability, you will have built a 'pipeline' of potential customers.

### Dealing with objections

Armed with a clear understanding of the selling story, you might feel unstoppable. But some negative response is likely, however good your selling story sounds. While you cannot avoid some sales calls falling flat, there are proven methods for maximising your success rate:

- **Be confident**  
Prepare your selling story in the customer's language.  
Explain in the first two sentences why your call is important to the customer.
- **Call high**  
Make contact at the highest appropriate level (often the 'owner' of the business issue in the selling story); he or she will not waste your time.

- **Call many**  
Start with a prospect base of at least a dozen contacts and don't stop until you have called them all. Don't get put off by one or two negative responses.
- **Call often**  
No reply does not mean 'go away'; it often takes half a dozen attempts to get through to a senior manager.
- **Use email and phone**  
Different methods work better for different people and organisations.
- **Be professional**  
Keep accurate records of all calls made, voicemails left and emails sent. 'No' means 'no'. When people say they are not interested, don't try to force the issue. Get their feedback and thank them for their time.

### **Help from marketing communications**

Good marketing communications can be a powerful accelerator to a proven sales process but are much less applicable at an early stage when neither the selling story nor the sales process are well understood. Marketing communications that tend to be most useful at an early stage are:

- A simple website that focuses on the selling story and the company's credentials. Many of your new contacts will go straight to your website to check up on you, but don't fall into the trap of thinking your website will sell your product!
- A one-page summary of your selling story. If prospects won't agree to a meeting after your initial contact, this can be a useful way to move things forward.

### **Ready to sell?**

Your selling story has been tested and refined in your target market and you have a good grasp of the business issues and problems that your solution addresses. You're about to pick up the phone to call a director of an FT250 company and you're thinking, 'I am the person who can help solve your problems. You will be glad that I called today'.

### **Yes, you're ready!**

#### **Further information**

Cox, Jeff, and Howard Stevens, *Selling the Wheel: Choosing the Best Way to Sell For You, Your Company, and Your Customers*. (New York, Touchstone, 2000).

Bosworth, Michael T, *Solution Selling: Creating Buyers in Difficult Selling Markets* (New York, McGraw-Hill, 1994).

## VIEWPOINT

Andy Richards



Andy Richards

***Andy Richards is a serial biotechnology entrepreneur and business angel founding several succesful companies including Chiroscience and Arakis. He is a director of eight companies including Vectura, Geneservice, Biowisdom and Daniolabs. He is a founder member of the Cambridge Angels, director of the Bioindustry Association (BIA) and the 2005 Cambridge Evening News Businessman of the year.***

One of the best bits of being an entrepreneur, particularly an entrepreneurial scientist, is 'having ideas'. But for bright creative people, 'ideas are cheap' – most entrepreneurial companies start with an idea, often a great one. It is doing something with the idea that takes the real commitment and intellectual investment. Naked ideas really only grow when exposed to open but challenging minds. So if you have a great idea, go and talk to people about it. If it's a good idea, it will improve and evolve with the telling; if it is hard for you to convey or for others to grasp, maybe it is not the right idea for now. Keeping a business idea secret correlates with failure more often than sharing ideas does; ideas are rarely stolen. If an idea is so secret that its benefits can't be communicated, it won't go anywhere.

Talking to people about ideas is the start of the 'selling process'. As an entrepreneur, you are always selling – selling to partners, potential future colleagues, champions, mentors, investors, customers, advisors etc. You need to learn what your own selling style is. Selling involves pushing people's buttons; you need to learn which buttons seem to generate enthusiasm when pushed and which approaches miss the mark. As you learn how to sell, don't forget to listen. Listening skills are key to the feedback loop in this process.

Finally, be 'flexible'. There is no 'right' or 'best' way with a business, whatever the business theory books say. There is simply a way that gets you to the next success point to make the next leap. All good businesses change. They dump their original great idea for one that is good but doable; they change their business model; they change their commercial direction; they change their team; they respond to the environment. Be an agent of flexible change rather than the precious preserver of the perfect original plan.

## 11 Accountancy essentials

Julian Stafford

*Julian Stafford is a law graduate, chartered accountant and chartered tax adviser. He runs a chartered accountancy practice in Cambridge, specialising in small and medium-sized enterprises (SMEs), particularly in the technology sector. He is a non-executive director or company secretary for a number of Cambridge companies. He lectures widely on finance in business.*



Julian Stafford

**What accountancy issues does a new business need to consider at the early stages of its development?**

### How to keep accounting records

Two main types of accounts exist:

- Management accounts: often produced monthly, which record cashflow and profit and loss, and track how the business is doing with respect to forecasts and help management record, plan and control the activities of a business
- Financial accounts: describe the performance and the state of affairs of a business over a specific period and are required by law to be prepared and published.

Most technology companies do not have very many transactions, so it is feasible to keep either simple manual records or a spreadsheet-based system. Both of these have the advantage that they can be tailored to the company's own circumstances and require no training. However, a bespoke computerised accounting package may have other advantages:

- It is easier to get to grips with such a system when transaction volumes are low.
- It may look more impressive to a potential investor.
- Accounts can be produced at any time. This may be important if investors require monthly financial information.
- The likelihood of human error is lower.
- Data can be easily exported into a spreadsheet for further manipulation.
- Bespoke systems have reporting advantages, as they are essentially databases where the creator of the package has pulled together reporting fields to provide easy-to-read reports. Of course, this could be done with an Access database or Excel spreadsheet, but it would take ages to replicate the large number of standard reports that are available with an accounting package.

Do not skimp on initial training; doing so is likely to store up problems for later. Even half a day of training will assist greatly with familiarisation and correct operation of the system.

Outsourcing to an accountancy firm may be useful in order to free up time for other business issues, while also saving software and training costs. With modern data transfer facilities, this can be done remotely.

## Financial forecasting

Most investors will expect detailed financial forecasts as part of your business plan, which is usually required for any outside finance. The required forecasts will vary from business to business, but the core parts will usually be:

- profit and loss account
- balance sheet
- cash flow forecast

You need to familiarise yourself with this terminology and have a basic grasp of accounting concepts to deal with these various forecasts. Many people don't understand what a profit and loss account or a balance sheet are, nor the fact that profit is based on sales made/expenses incurred rather than on cash in/out, as in a cash flow forecast. Also, most people don't understand depreciation and the difference between capitalising and writing off expenditure.

Many people doubt the usefulness of forecasting, as it's all 'guesswork'. But it's a lot better than doing nothing because it forces you to think in detail about the costs likely to be encountered as the project develops. Forecasting sales is particularly difficult if it will be several years before the product is ready for sale. However, it is always possible to come up with estimates, however approximate, which at least make it possible to assess whether the likely future revenues will exceed the (often very significant) costs which will come first.

Many people use spreadsheets for forecasting. This has the advantage that it can be home-made. However, spreadsheet formulae can become very complicated and therefore error-prone. Furthermore, altering them can be time-consuming and the format of the information produced may not be very reader-friendly. If funds permit, a bespoke forecasting program can save a lot of time. Data can be imported from most computer packages or spreadsheets and a series of data input screens enables a large amount of detailed information to be input. The three core documents referred to above can be produced instantly for several years into the future.

Remember that 'what-if' analysis is vital, with forecasts to assess the effects of changes in one or more of the main assumptions used.

Finally, forecasts need to be updated regularly, possibly on a rolling basis, and it is often useful to compare actuals with budgets to highlight variations from plan.

## Reporting and filing requirements

All limited companies have to produce annual accounts. Full accounts have to be produced for the shareholders, but abbreviated accounts (basically a balance sheet) can be filed at Companies House. The filing deadline is 10 months after the year end. The Inland Revenue will also need to receive full annual accounts together with a corporation tax return. All these documents will normally be produced by an accountant, due to the detailed disclosure requirements and tax issues involved.

An audit will not normally be required unless:

- Investors or other minority holders request one
- Sales exceed £5.6m annually
- You become a plc

Limited-scope audits are usually required if Department of Trade and Industry (DTI) grants are obtained.

You may actually want an audit. Despite the extra cost involved, an audit:

- Provides greater assurance concerning the figures.
- Reduces the risk of financial irregularities.
- May highlight system improvements.
- May impress potential investors.
- May reduce the likelihood of tax enquiries from Inland Revenue.

Other filing requirements include:

- Form P35, if you have any paid employees.
- Form P11d, if you reimburse expenses or provide staff benefits.
- Form 42, if you issue shares.
- Annual return to Companies House (much of the information is pre-printed on the return).
- Various filings required by Companies House for share issues, changes of director, changes in the Articles, etc.

If you are a director, the Inland Revenue will probably issue you with a personal self-assessment return which must be filed by 31 January following the end of the tax year (5 April).

### **Value-added tax**

No, don't skip this one please. You will probably be better off registering for VAT.

- The principles of VAT are:
- You charge VAT on everything you sell and pay the VAT over to Customs and Excise (C&E).
- You claim back VAT on everything you buy.

Therefore, most technology businesses actually get money back each quarter from C&E – the VAT on all the items they have bought during the last quarter.

You can also claim back VAT incurred prior to the company being formed, as long as certain conditions are satisfied.

You do not need to be a VAT expert, but you are required to account for the correct amount of VAT. There are no prizes for getting it right, but you will have to pay over any under-declared VAT if you get it wrong. Therefore it makes sense to be familiar with the basics. When you register, it is highly advisable to peruse the first few chapters of C&E's surprisingly readable book, *The VAT Guide*, which can be downloaded as a PDF file from the Revenue and Customs website listed below.

There are a number of schemes available: cash accounting, annual accounting and the flat-rate scheme. These are all explained in *The VAT Guide*.

### Other

There are tax incentives for small companies doing R&D work. The relief operates by increasing the company's expenditures for tax purposes by 50%. (If the company spends £1,000, it is treated as £1,500 for tax purposes.) Either this creates a bigger loss to carry forward against future profits or the company can surrender the losses in exchange for an immediate tax repayment of 16% of the enhanced expenditure (£240 in this example).

### Cost of accountancy services

Accountancy fees of well under £1,000 should provide a start-up with the following:

- Preparation of the annual accounts in Companies Act 1985 format and filing thereof.
- Preparation and filing of the Corporation Tax return (form CT600).
- Completion and filing of the Companies House annual return.
- A reasonable level of ad hoc queries during the year.

### Further information

[www.hmrc.gov.uk/](http://www.hmrc.gov.uk/). Provides an introduction to all aspects of Value Added Tax.  
[www.hmrc.gov.uk/library.htm](http://www.hmrc.gov.uk/library.htm)



Paul Goldsmith

### VIEWPOINT

**Paul Goldsmith**

**Chief Scientific Officer, DanioLabs Ltd**

**[www.daniolabs.com](http://www.daniolabs.com)**

***Paul Goldsmith has a broad clinical, science and commercial background. He founded Cambridge-based therapeutics company DanioLabs, taking it through three funding rounds, generating a product portfolio and pipeline and a discovery engine. He also maintains his clinical practise.***

Top tip is be stubborn, but with insight. A difficult tightrope to walk. Many people will say it is too difficult. In a way, that is good because it is a barrier to other people doing the same thing. But don't be deluded into thinking something is possible when it is not.

There is a lot of good-quality free advice out there. Don't go for the gold-plated version of things from the megabucks lawyers and accountants when you don't need that. Use the DTI, Inland Revenue and other such helplines. Starting out, money will be tight. Be flexible. Climates change quickly, with the responsive fast adapters growing the fastest.



## 12 Learning, mentoring and networking opportunities

Yupar Myint and Peter Luebcke

*Yupar Myint is a Programme Manager at the Centre for Entrepreneurial Learning at the University of Cambridge.*

*There is so much to learn. And there are many opportunities to learn from people with experience.*

The University provides widespread and comprehensive activities and initiatives in the teaching, support and stimulation of entrepreneurship. This section will list just a few of the key initiatives that are delivered by the Centre for Entrepreneurial Learning, Cambridge Enterprise and various student organisations as well as some key regional organisations. Entrepreneurs starting off in Cambridge are lucky enough to have this wealth expertise and opportunity on their doorsteps.



Yupar Myint

### Courses delivered by the Centre for Entrepreneurial Learning (CfEL)

- **Enterprise Tuesday**  
Aims to introduce participants to the world of business, as well as to encourage and inspire individuals to pursue their entrepreneurial ambitions.
- **Summer School**  
Provides the tools, contacts and confidence to transform ideas into reality, through a blend of practical teaching sessions, expert clinics, mentoring sessions and experienced advice and support from leading entrepreneurs and innovators.
- **CMI Enterprisers**  
A week-long residential entrepreneurship programme aimed at young and energetic individuals from top universities ([www.cmi-enterprisers.org](http://www.cmi-enterprisers.org)).
- **Undergraduate and Postgraduate Programmes**  
CfEL works with several departments within the University of Cambridge to offer courses in entrepreneurship.
- **Projects in Partnerships**  
CfEL frequently works in partnership with other organisations to deliver entrepreneurship programmes.

Contact: Yupar Myint on 01223 766900 or [y.myint@jbs.cam.ac.uk](mailto:y.myint@jbs.cam.ac.uk). See also [www.entrepreneurs.jbs.cam.ac.uk](http://www.entrepreneurs.jbs.cam.ac.uk).

### Other courses

- **MPhil in Bioscience Enterprise**  
This one-year multidisciplinary master's programme delivered by the Institute of Biotechnology, brings together outstanding individuals from all over the world who intend to pursue a career at the interface of bioscience and business.

## Business mentoring delivered by Cambridge Enterprise

- **Mentoring programme**

A group of experienced business people offer their time for free to provide advice to early-stage entrepreneurs across the technology sectors and business disciplines.

- **Business surgeries**

A weekly opportunity to discuss specific topics confidentially and at no cost with professional service providers such as lawyers and marketing experts and with investors such as venture capitalists.

- **Focused workshops**

Occasional sessions focused on specific topics of concern to start-ups. Not a teaching exercise as such, but more of a how-to for ventures that need answers to pressing issues.

Contact: Peter Luebcke of Cambridge Enterprise on 01223 760339 or [peter.luebcke@enterprise.cam.ac.uk](mailto:peter.luebcke@enterprise.cam.ac.uk).

## Networking opportunities

These organisations offer useful networking opportunities and other ways to engage in entrepreneurship:

- **Cambridge University Entrepreneurs (CUE)**

Annual business plan competition and networking for new technology and social business ventures. ([www.cue.org.uk](http://www.cue.org.uk))

- **The Cambridge Network**

Everything from business news updates to member company information. ([www.cambridgenetwork.co.uk](http://www.cambridgenetwork.co.uk))

- **Eastern Region Biotechnology Initiative (ERBI)**

A comprehensive business network for almost 200 biotechnology companies, providing specialised support and activities including regular networking meetings. ([www.erbi.co.uk](http://www.erbi.co.uk))

- **Cambridge High-Tech Association of Small Enterprises (CHASE)**

A lively networking group for entrepreneurs, start-ups, small firms and people interested in business and high-tech. ([www.chase.org.uk](http://www.chase.org.uk))

- **Cambridge University Local Industry Links (CULIL)**

A forum for dialogue between the University and local businesses. Holds dinner seminars about five times a year. ([www.clo.cam.ac.uk/culil](http://www.clo.cam.ac.uk/culil))

- **Enterprise Link**

A membership network providing advice and support for early-stage, entrepreneurial businesses. ([www.enterprise-link.co.uk](http://www.enterprise-link.co.uk))

- **Cambridge Enterprise and Technology Club (CETC)**

Provides a networking forum for business people, academics, technologists and service providers, together with a unique opportunity to learn about cutting-edge technologies. ([www.cetc.info](http://www.cetc.info))

## Venture capital glossary

Neil Osmond

*Neil Osmond is a solicitor in the corporate department of Brown Rudnick, an international law firm based in the USA and Europe with a renowned practice focus on technology companies. Neil specialises in venture capital backed companies, both large and small, and has also gained in-house experience having spent some time with Imperial College Innovations Limited.*



Neil Osmond

### Angel Investors

Early-stage investors, or seed-round investors, usually investing their own capital, who buy shares in a young company whose only assets might be its management, business plan, and intellectual property and ideas. See also *'Seed Capital'*.

### Anti-dilution Provisions

Rights which may attach to 'preferred shares' or 'preference shares' and which favour the investors who may have demanded such rights in order to prevent their shareholding(s) from being unduly diluted in subsequent investment rounds, should the subscription price in such rounds be lower than the price per share at which they invested (a 'down-round'). It is increasingly common to see academic and/or governmental institutions having the right to maintain specified percentage shareholdings through a number of investment rounds or until the company in question has raised a specified amount of third-party funding. If anti-dilution rights exist, they will usually be embodied in a company's articles of association and/or shareholders' agreement. The severity of such rights will depend on the parties' respective bargaining positions or requirements and will range from fully weighted anti-dilution rights, to full ratchet anti-dilution rights, to rights to maintain a specified percentage (for a particular length of time or until the occurrence of a specified milestone). The rights entitle either (a) the conversion rate between the preferred shares (to which the rights attach) and the ordinary shares to increase at each down-round so that the preferred shareholder will be awarded with more ordinary shares on eventual conversion, or (b) the preferred shareholders to receive further preferred shares (or other class of share) at nominal value pro rata to their preferred shareholdings (akin to a bonus issue) to put them nearer the position they would have been in had they invested in the down-round.

As an example, and applying method (a) above, if a prior round of financing raised capital at £2.00 per share with investors receiving full ratchet anti-dilution protection, and the subscription price in a subsequent round of financing is then £1.00 per share, the early-round investors would have the right to convert their shares at the £1.00 price, ie, doubling the conversion ratio and thereby doubling the number of shares they would receive on eventual conversion.

For the same example, but applying method (b) above, the investors would have the right to subscribe for such number of shares (at nominal value and at completion of the subsequent round) that would either maintain their absolute shareholding or give them the number of shares they would have received had they invested at the lower subscription price, depending on the anti-dilution provisions in question.

### **Bridge Loan, Bridge Financing or Bridge Round**

Interim financing provided to a cash-strapped company ahead of it securing longer-term financing, usually from participating investors, and in the form of a loan which will either be (a) repayable or else will be (b) convertible at completion of the next round. It is common for convertible bridge loans to be converted (with interest) into shares at a discount to the prevailing subscription price. They may be secured against the company's assets, including intellectual property.

### **Capitalisation**

The share structure and history of a company, reflected in the company's share reserve account. The capitalisation is commonly set out in the company's 'cap' table and will include all shares that have been issued, together with the prices paid for them and with all options, warrants and other instruments convertible into shares in the company.

### **Debt/Equity Ratio**

A measure of a company's leverage, calculated by dividing the company's debt by shareholders' equity. The higher the number, the higher the company's gearing.

### **Debt Financing**

Financing by selling bonds, notes or other debt instruments, usually secured against some rights or assets.

### **Development Stage Capital/Fund**

Later-stage venture capital financing. The development stage of a company's life is when a company has started to prove its business plan and management team, and may even have generated revenues, but extra funding is required for expansion. A 'Development Stage Fund' is a venture capital fund focusing on development-stage financing.

### **Dilution**

Further issues of shares in a company (whether by way of subsequent share offers or by the award and exercise of share options or convertible stock), which will have the effect of diluting existing shareholdings on a pro rata basis.

### **Drag-along Rights**

Contractual rights (usually attached to preference shares held by institutional shareholders) pursuant to which the holders of such rights may be entitled to compel the other shareholders to sell their shares to a potential buyer of the company; ie, all shareholders become 'dragged into' the acquisition, even though the preference shareholders with such rights may only comprise a small number of shareholders. Drag-along rights enable a cleaner 'exit' and make a company more attractive to a potential buyer. There are compulsory acquisition rules set out in the Companies Act 1985 that are a statutory form of drag-along rights, but these are subject to stricter conditions (making them less attractive than contractual drag-along rights) and are designed mainly to prevent a small number (those holding less than 10% of issued shares) of hostile, straggling or absent shareholders from preventing a buyer from acquiring the entire company.

### **Dual Listing**

The listing of a company's securities on more than one stock or investment exchange; for example a UK and US exchange.

**Due Diligence**

An investigation and examination of the books and records of a company and interviews with officers, partners, etc, to confirm information about the issuer's business, legal and accounting affairs. It typically includes a review of such matters as significant customers and suppliers, the background of key employees, material contracts, facilities, real property owned, subsidiaries, litigation, insurance, patents and other intellectual property rights, licences and permits, and tax matters. The purpose of the due diligence exercise is to identify errors and omissions which should be addressed, identify outstanding and potential liabilities, and, ultimately, help value the company.

**Exercise Price**

The price at which shares that are subject to a stock option may be purchased on exercise of the option (also known as the 'strike price' in the traded options market). The exercise price is commonly the prevailing price of the underlying security at the time of the award of the stock options to a person (rather than the periodic vesting of the options).

**Flotation**

The registered public offering of securities of an issuer to the public for the first time. Also known as Initial Public Offering or IPO, see *Public Offering*.

**Friends and Family**

A term used for a class of investor comprising friends and family of the management who may be invited to invest in the company. Other similar terms include 'Country Club', which comprises investors familiar to the management team but not as close as friends and family.

**Institutional Investor**

An institution such as a venture capital fund, investment company, mutual fund, insurance company, pension fund, or endowment fund, which generally has substantial assets and experience in investments. They account for a majority of overall trading volume in most major securities markets.

**Letter of Intent**

A letter from one person or company to another, indicating a general willingness or intention to engage in some type of transaction. A letter of intent frequently precedes negotiation of complete agreement and is typically intended by the parties not to be legally binding (which should be expressly stated) save for particular provisions, such as those relating to costs, confidentiality, or exclusivity. A term sheet is a form of letter of intent.

**Loan Note**

See '*Bridge Loan*'.

**Lock-up Agreement**

Agreement between an underwriter and certain shareholders of a company requiring the shareholders to refrain from selling their shares in the public market for a specified period after a public offering. This is done to protect investors in the company by ensuring that a company's management do not simply use an admission as a means of realising their investment in the company.

**Mezzanine Capital/Fund**

Later-stage venture capital financing required by companies that have proven their business plan and which are on track commercially to float on a stock exchange, but require, for one reason or another, extra time before the IPO. A 'Mezzanine Fund' is a venture capital fund focusing on mezzanine financing.

**Observer**

A person, usually nominated by an institutional investor, to receive notice of and attend board meetings of a company but not entitled to vote at such board meetings. A strong investor may have the right to appoint a director of the company and to appoint an observer.

**Option**

A contractual right to purchase (in the case of a call option) something (such as shares) or sell (in the case of a put option) something at a future time or within a specified period at a specified price (the exercise price). *See also 'Exercise Price'.*

**Ordinary Shares**

The basic form of equity ownership in a company. Generally equivalent to common stock in the US.

**Par, Par Value, or Nominal Value**

Under the Companies Act 1985, shares in a limited company are required to have a nominal or par value and cannot be issued at a discount to this amount. Although shares may be issued nil-paid, the shareholders remain liable to pay up the nominal value on each share, together with any premium (the subscription price less the nominal value) they have agreed to pay per share by contract. In practice, the nominal value of shares is kept small (rarely above £0.10) to increase marketability. It is customary for the founders of the company to be issued shares at nominal value only; all other shareholders, including angel investors, would expect to pay a premium in addition to the nominal value.

**Pre-emption Right**

Pre-emption right is the right of first refusal that may attach to a share and operate in new share issues, as well as share transfers by existing shareholders. The Companies Act 1985 provides all shareholders with the right of first refusal on a new issue of shares to give them the opportunity to maintain their percentage ownership in the company and prevent the management from diluting them by offering shares cheaply to other parties. Similarly, pre-emption rights on share transfers ensure that existing shareholders remain the owners of the company. Shareholders can waive their pre-emption rights by resolution and/or contract; institutional investors would expect such waivers to be given by subordinate shareholders.

**Preferred Shares or Preference Shares**

Preferred shares have preferential rights to those rights attached to ordinary shares, including, among others, the following: priority in respect of dividends; priority on a return of capital on a winding up ('liquidation preference'); anti-dilution rights; drag-along/tag-along rights; non-economic rights such as registration rights (the right to have their shares listed on a US exchange if the company seeks to IPO there); the right to a board seat; veto rights in respect of management decisions; and rights to receive financial information. A company entering its third or fourth round of VC funding might expect to have two or

even three classes of preference shares, with an order of priority between them. Although angel investors might accept ordinary shares, venture capitalists generally negotiate preferential rights.

### **Private Placement**

The offer and sale of securities not involving a public offering. The definition of public offering varies from country to country, as do the rules relating to them. A private placement, typically at least, implies a limited number of private investors whose business it is to make investments in private companies and who will subscribe for shares.

### **Public Offering**

An offering of stock to the general investing public. The definition of a public offering varies from country to country, as do the rules relating to them. A public offering can be an Initial Public Offering ('IPO'), where a private company floats on an exchange and new shares are offered for subscription simultaneously, or a subsequent public offering by a publicly traded company. A public offering is more complex than a private placement; it requires additional advisors (such as an underwriter, broker and nominated advisor) and documentation (such as a prospectus).

### **Redemption**

Repurchase by a company of its securities from an investor. Redemption rights are often requested by preferred shareholders in a venture capital financing. Only shares stated as being redeemable in a company's articles of association can be redeemed. Not all shares in a company can be issued as redeemable; otherwise there could be the instance when all shares might be redeemed and there are none left in issue. Redemption of redeemable shares is subject to the rules on share capital maintenance as set out in the Companies Act 1985.

### **Road Show**

The process, during a public offering, in which the management of an issuing company and the underwriters meet with groups of prospective investors to stimulate interest in an issuer. Road shows are conducted during the 'waiting period' shortly before the registration statement becomes effective. Road shows are so named because the management and advisors may take the show on the road to different cities and countries to reach the widest audience.

### **Rounds or Financing Rounds**

Stages of financing of a company. A first round of financing is the initial raising of outside capital. Successive rounds may attract different types of investors as companies mature, and different classes of shares with different rights may be offered in different rounds.

### **Seed Capital**

Initial capital for a start-up venture, usually provided by the founders, friends and family, but that also may be provided by specialist seed VCs, and private investors who are also known as '*Angel Investors*'. Typically, seed capital is provided in order to develop a business concept soon after the formation of a company.

### **Senior Debt**

A secured debt instrument which has a higher priority for repayment than that of general unsecured creditors. Typically used for long-term financing for low-risk companies or for later-stage financing. *See also* '*Subordinated Debt*'.

**Shareholders' Agreement**

An agreement among shareholders which embodies the share rights and management controls not included in the articles of association. It is a superior document to the articles in that its terms prevail in the event of a conflict with the articles. It is not a public document, and gives shareholders legal recourse against other shareholders directly rather than through the company. It is often entered into simultaneously with a share subscription and called a 'subscription and shareholders' agreement'.

**Shelf Company or Shell Company**

A shelf company typically refers to a newly-incorporated company that has no trading history. A shell company can be either a newly-incorporated company or a near-dormant company that holds no assets and is merely an empty shell which may be retained on the Register of Companies for no other reason than to protect that company name.

**Subordinated Debt**

Debt which expressly has a lower priority for repayment than other debt, ie, it may not be repaid until the senior debt has been repaid.

**Tag-along Rights**

Rights which may attach to a class of share enabling the holders of them to participate in a share transfer offer received by other shareholders from a third party (and participate on the same terms as stated in that offer). This is usually a preferential right and allows the holder of such rights further choice in their 'exit' as a shareholder in the company. These rights are typically contained in a company's articles of association or shareholders' agreement.

**Term Sheet**

A short document summarising the commercial terms of a proposed investment that investors have negotiated with the company. It is usually non-binding, but may impose some legal obligations on the investor and the company (confidentiality and lock-out provisions, for instance). *See also 'Letter of Intent'.*

**Venture Capital**

Characteristically, financing provided for new higher-risk ventures such as start-up companies and new technology companies.

**Warrant**

Another word for a call option. The term is generally used for options which are transferable and are sold to outside investors (as distinct from officers, employees, etc).

**Warranties or Representations and Warranties**

Statements of fact, such as, 'There is no litigation, actual or pending', given by the warrantors. Statements put in a share purchase agreement, underwriting agreement, or other financing document in which the warrantors provide assurances as to the status on a wide range of issues such as the company's issued share capital, assets, litigation, and regulatory compliance. The warrantors commonly include those parties who are knowledgeable as to the warranties being given or who are receiving a benefit from those relying on the warranties, ie, any of (and sometimes a mixture of) the company, the founders, the management team, etc. Warranties can be limited in a number of ways, including by the disclosure of specific items put into a disclosure letter, ie, 'There is no



litigation, actual or pending, save for the following claims: X; Y; and Z'. Warranties wrongly or recklessly given can lead to breach of contract and provide the person who relied on the warranties at the time of entering the contract with a variety of remedies.

**Yield**

The rate of return on a debt instrument if the full amount of interest and principal are paid on schedule. Current yield is the interest rate as a percentage of the initial investment.

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## Cambridge Enterprise

*'Cambridge Enterprise exists to help University of Cambridge inventors, innovators and entrepreneurs make their ideas and concepts more commercially successful for the benefit of society, the UK economy, the inventors and the University.'*

We provide a comprehensive knowledge and technology commercialisation service for University staff and students. In collaboration with researchers, we manage intellectual property protection, carry out bespoke marketing, negotiate technology licences, consultancy contracts and other business agreements. For people interested in forming a company, we offer start-up clinics, one-to-one mentoring, and access to investors and experienced management.

If you are interested in working with CE:

- Call us on +44 (0)1223 760339
- Visit us at 10 Trumpington Street, Cambridge CB2 1QA, England
- See [www.enterprise.cam.ac.uk](http://www.enterprise.cam.ac.uk)

## The Cambridge-MIT Institute (CMI)

CMI's mission is to deliver education and research to enhance the competitiveness, productivity and entrepreneurship of the UK economy. It focuses on the interface between academia and industry, and is concerned with improving the effectiveness of the knowledge exchange process.

The main strategic thrusts of CMI's current phase aim to create:

- **Research projects**, centred on an important idea, developed with consideration of use, and with imbedded innovations in knowledge exchange
- **Studies in innovations in knowledge exchange**, to systematically learn from our innovations, produce materials for education programmes, and impact more widely university, industry and government policy and practice.
- **Educational programmes** and materials for wider dissemination, aimed at educating a generation of learners with the knowledge, skills and attitudes required for effective knowledge exchange.

Please visit: [www.cambridge-mit.org](http://www.cambridge-mit.org)