THE 60 MINUTE GUIDE

to

GROWTH, INNOVATION AND ADDED VALUE

Forward

This guide is designed to help businesses who are keen to grow and thrive, in the modern climate of change and competition.

It focuses on the key business process of innovation, the successful exploitation of new ideas, and the factors most relevant to this.

It provides practical and readable advice and ideas on how to prepare for it and how to carry it out, the inherent risks and ways to reduce them.

The guide also covers innovation, using the vehicle of a new company start up or university spin out.

It represents a lifetime of experience of innovation, from large companies to very small ones and also new ones.

CONTENTS

1. The Business Climate today

- The pace of change continues to increase. What was satisfactory yesterday is either no longer wanted or superceded by something better today.

- Globalisation, competition from low labour cost countries (developing countries), the ubiquity and speed of communication, the advance of technology and rapidly changing consumer tastes are driving this change.

- **Change brings both danger and opportunity**. Changes must be sensed, interpreted and then acted upon. Charles Darwin said "*the species that survived were not the most intelligent – they were the most adaptable to change"*.

- Every business and every product/service is open to competition and every activity's value is open to challenge. Potential competitors can come from anywhere in the world and they are no longer easy to recognise. In most UK business sectors, foreign competitors are systematically investing more in R&D, and Innovation

- Although size and global coverage make some companies very powerful, flexibility, innovativeness, and speed to market are still very competitive responses.

- All new products and services grow and mature in a manner generally described by a S shaped **Life cycle curve** (Diagram A). Their position on this curve dictates a characteristic response (e.g. investment and process improvement in the growth phase, cost reduction, economy of scale and minor novel variations in the mature phase and an exit strategy and replacement in the decline phase). The time between innovation and maturation is becoming ever shorter.

- New and better quality business is an important safeguard against business decline and failure. Failure is most common at the end of a recession and small businesses are the most susceptible. The main causes are, in order of importance, loss of market, lack of finance, bad debts and management short comings.

2. A Responsive Business Strategy

- **The role of business is to create wealth** (**added value**). This added value is used to reward the stakeholders (employees, providers of capital and government through corporation tax) and then to sustain and develop the business through investment for growth (R&D, capital/investment, and amortisation of acquisition goodwill). **Failure to create enough added value will jeopardise growth.**

- Value added is a simple and good measure of how well a business is doing. It is defined as sales less cost of bought in materials, components and services. It is most easily calculated from Annual report figures, as operating profit plus employee costs, depreciation, and amortisation.

- Useful comparisons with similar companies can be made by using VA per employee (labour productivity) and VA per employee costs plus deprecation (value adding efficiency) as the comparative measures. Companies who consistently under perform, with a value adding efficiency below 100%, are generally heading for difficulties. Good strategic choices, operational excellence and wise and balanced investment are the precursors to VA growth, high productivity and good value adding efficiency.

- Every business needs strategic purpose and direction, as well as the ability to respond quickly and flexibily to change and maturation. This should be embodied in a **business plan** which should have at its heart an appropriate mix of **improving performance** (maintaining and improving margins) **and growth** (investing in new products and services).

- Michael Porter defines **strategy** as "a combination of the ends for which the firm is striving and the means by which it is seeking to get there". However a strategy has no value unless it is combined with the commitment of those involved to deliver it.

- Growth can be organic (internal) or by acquisition. Evidence from the market place suggests that as many as two thirds of acquisitions result in loss of value through overpayment, poor integration and loss of focus. The assimilation of a different culture can be a slow and difficult process.

- A good business plan will cover the aims of the business and the strategy for accomplishing them, (Diagram B). It will include the procurement and maintenance of key assets (fixed, people and intellectual capital) and the process for their exploitation, as well as the risks, the necessary investment and its management. Milestones, targets and timings will also be key features of the plan. Above all a good plan will be flexible and responsive to the changes in the external environment.

- A business that is not growing through new product and service introductions is likely to be in decline, as it's existing sales portfolio inexorably matures Many successful businesses operate with targets such as 30% of sales from new product/service introductions made in the last 3-5 years or similar, to counteract this.

- The old model for business success of mastery of capital/labour and production is no longer relevant. **The new emerging model** for today's rapidly changing world involves:-

Understanding – market/customer needs from customer intimacy,

A**ccess** – to knowledge/skills and ideas through networking, and
Innovation – by turning ideas and creativity into successful new business.

3. The Importance of Innovation

- Investing in new and better products or services requires **innovation *"the successful exploitation of new ideas"*.** No idea or innovation is successful, until its commercial manifestation is purchased in significant amounts. The evidence shows that innovative businesses deliver above average sales growth and profitability.

- New and better products or services may be created from new technology, a new application of old technology, by new design, through a new delivery model or just by better business processes.

- The stimulus for innovation can arise from either "**technology push**" or "**market pull**" or sometimes a conjunction of the two. Often, novelty is created by the **fusion of different technologies** to meet a technical need in the market place.

- Involvement in R&D can provide technology, knowledge and expertise, but this can also be obtained from elsewhere. An important pre requisite, however, is to have the necessary skill to recognise, translate and apply the technology, wherever it comes from.

- "*Research is the transformation of money into knowledge, whilst innovation is the transformation of knowledge into money*." Public sector R&D is mostly R (the creation of explicit knowledge which is published and available to all) whilst private sector R&D is mostly D (the application of one or more technologies to produce a desired and saleable outcome**)**.

- The ability to create new ideas, to evaluate them and to access and use knowledge and skill to develop them is fundamental to business innovative success. Business networks, whether local, sectoral or technology based are excellent sources of ideas, knowledge, support and, encouragement, and possible collaborators or partners.

- Universities are very good sources or gateways to specific technological knowledge. Most Universities have Technology Transfer, Business Service or Outreach offices staffed to help the interaction with appropriate academic staff. It has been shown that 17% of business directly use the university science base, whilst 55% make indirect use.

- A University may be used as a source of tacit knowledge (consultancy), a gateway to leading edge explicit knowledge (consultancy) or a place to generate new required knowledge (collaborative research). The best and most productive interactions are built up over time, with trust and respect for each others needs. Other useful and valued interactions that lead to good quality knowledge transfer are placements, recruitment, and licensing or spinouts of intellectual property.

- **Knowledge transfer is mainly a tacit (person to person) process**. Tacit knowledge offers potential competitive advantage since it is not normally available to others and is tailored to the interacting parties. It has been shown that three quarters of the most important contributions of academic research to technology development are tacit.

4. The Needs of the Customer

- Innovation is often seen as a technical activity, but ultimate **success is measured by acceptance in the market place.** Significant investment is needed to understand the potential customer needs and the dynamics of the market, and for possible branding and marketing.

- **Function** (***what it does)*** **and form** *(how it is presented)* are the key components of the design of a new product or service

- The design or presentation must also be geared to specifically appeal not only to the user, but also to those (if these are different) who will make the actual purchasing decision and the criteria which they will apply eg:

Purchasing Manager	Price and volume
Technical user	Specification and performance
Consumer	Perceived value and emotional response

- An appeal to the emotional needs of a consumer, can be considered using Maslow's hierarchy of needs, where the most basic needs must be fulfilled before the higher ones come into play:-

5. Personal development	Freedom and knowledge
4. Self esteem -	Feel good factor
3. Esteem of others	Brand recognition
2. Belonging -	Form and acceptance
1. Survival -	Function and utility

  In the developed world, whilst function and form remain fundamental, some satisfaction of the higher emotional needs is also a pre-requisite of success, for example **brand recognition** (e.g. designer products), **feel good** (e.g. entertainment, cosmetics, health, etc.) and **personal freedom** (e.g. personal transport, 3G phones, service, etc.)

- A good potential new product must have a customer perceived value very significantly in excess of the estimated costs of providing it, since there will inevitably be some unexpected additional costs during the innovation process.

- Customers, or consumers, are seldom able to consciously express their latent needs, although they will usually recognise the solution when shown it. Listening to customers is therefore not sufficient, to understand what they might want. The best process is to closely observe what they do with current products or services and creatively identify what is missing, not satisfactory or could be improved (**customer and market immersion**). From this a potential product/service idea might be envisaged. There is considerable evidence that in depth **immersion** leads to **intuition**, or ideas which can be turned into the foundations of **innovation**. It also follows that it is important to turn any promising idea into a prototype, that can be looked at, played with and commented upon by the customer, as soon as is practicable.

5. An Organisation for Innovation

- An organisation that is serious about innovation
  Connects - with customers, users and markets.
  Creates - successful new ideas
  Inspires - its people to innovate

- An organisation capable of successfully harvesting the potential of their people, their ideas and their processes is an "*Unlimited Company*".

- An organisation that promotes innovation as a key output must engender creativity, calculated risk, and entrepreneurial spirit and couple this harmoniously with business and project delivery disciplines. An innovative organisation must always be a subtle and **shifting balance between the two different cultures of creativity/freedom (*inspiration)* and control/delivery (*perspiration)*.** This is the art of innovation leadership.

- **Leadership is critical to successful innovation**. It is needed to create vision/ambition and inspiration to get the process started, and then to motivate the participants to achieve stretching goals and overcome the many barriers and problems encountered during the process. It is about creating a culture where "*ordinary people can achieve extraordinary things*".

- Innovation leaders must, not only, create the right climate for innovation, but also find supporters and backers, and recruit, manage and develop a delivery team. They must also enunciate the vision, understand the external world (**foresight**), create stretch goals, provide freedom to achieve (**empowerment**),and inspire their team.

- Inspirational leaders have been shown to have a strong customer focussed vision as well as being lateral thinkers and calculated risk takers. They also have high integrity and trust, are listeners and reflective thinkers, are involved and accessible and value and appreciate their team.

- People cannot be given empowerment, they must be encouraged to actively take it. They will take it when they accept the goals and recognise that both freedom and support are available. "*People cannot discover new oceans until they have the courage to lose sight of the shore*".

- Individuals are potentially susceptible to four key motivators, namely **achievement/ success, personal development of their skills and abilities**, **recognition by their peers** and **reward**. The last is the least important. An innovative organisation will seek to ensure that as many of these are satisfied, as possible.

- It is also very important to ensure that the creative and problem solving (staff) are exposed to and have meaningful interaction with customers in their environment, to aid the recognition of potential needs and marry these with novel technical solutions.

6. Risk and Reward

- *"Innovation is a risky business, but not innovating is even riskier"*

- Risk is **the product of the probability and impact of a negative outcome**. Understanding, evaluating and managing this is an essential part of the Innovation process.

  - Risk from innovation can be subdivided into three types:-

    Operational - Failure to meet specification, costs or launch date.
    Damage to company reputation and brand.
    Commercial - Consumer resistance.
    Competition.
    Financial - Investment yield is less than planned.
    Debt/equity investors become dissatisfied.

    All of these are inter-related and a negative outcome in one area is likely to contribute to negative outcomes in the others, particularly financial.

  - Potential risks should be considered in terms of Impact (size of financial loss), likelihood of occurrence, (% chance of happening) and ways to reduce them. The first two are multiplied together to give an indication of significance. It is obviously not wise to take a large risk whose negative outcome could severely damage the future of the company.

  - Operational risks can usually be controlled, whilst Commercial risks are more problematical and can only be reduced by good intelligence and particularly test marketing. Some Financial risk, can be alleviated by projects having large margins and reasonable contingency costs built in.

  - Ultimately the up front investment of money into knowledge, prototypes and marketing, before success is achieved, represents most of the risk. This may be small if the innovation is incremental (e.g. product/service improvement), or larger if the novelty is greater.

  - All opportunities for innovation should have the **balance between their risk and their reward** assessed, to determine their attractiveness. *"Risk and reward travel side by side. Avoid one and the other will also pass you by."* A projected risk-reward cash flow over time relationship (Diagram C) illustrates the investment risk and the time to reach payback and reward. Slippage at any stage can have significant multiplying effects on the time to reach reward.

  - This investment risk (the cost of innovation) can be financed internally (through use of retained earnings) or externally through debt or equity. The latter, however, brings detailed external scrutiny (due diligence) and therefore less freedom.

  - Risk can be reduced in a variety of ways, such as by:-

    Advice (Mentors, Banks, Professionals, Consultants, etc).
    Shared (financial or knowledge partnership) for a share of the reward.
    Protection of competitive intellectual property (patents, trademarks, registered designs and copyright.)
    Public sector support (advice, grants and tax credits).

7. The Innovation Process

- Innovation is a **key business process** and is essential for both improving performance and growth. Most businesses do some of it without even necessarily realising that they are doing it. Like all business processes, it is best carried out in a reasonably systematic fashion.

- The process starts with an idea and ends with successful and profitable sales. It is easiest to describe in a linear fashion, but in practice many activities often take place together, or in a different order, and may require recycling. In general, the front end is more diffuse and the back end more prescribed.

- The process can be best described using the **"Stagegate"™ model**, where activity is broken down into discrete linear units, and progression only occurs after satisfying certain criteria, designed to ensure that the investment is minimised in the early stages and if necessary the project abandoned sooner rather than later. In this way a portfolio of projects in an **"innovation pipeline"(**sometimes called **the innovation funnel** because many ideas at the start are refined down to only a few market entry projects), can be created, with their progress matched to suit the available funding, resources and desired entry time into the market place. (Diagram D).

- Typical stages in the "pipeline or funnel" are:

Concept	**Idea Generation**
Feasibility	**Proof of Concept/Principle**
Development	**Development, Prototyping and Testing**
Implementation	**Marketing and launch**

- Between each of these four stages there are three notional gates where the idea/project can be assessed against selected criteria to determine whether to progress it.

  The first gate involves consideration of a very large number of ideas against strategic fit, market need, impact on the company and the chances of technical success, to decide which are worth exploring further.

  At the next gate projects will go into development and are selected on the basis of market acceptability, achievability of technical requirements, risk/reward criteria, and the availability of the required resources (people, facilities and money).

  The final launch gate involves satisfactory feedback on the prototype, an assessment of the competitive response, and deliverable strategies on sourcing, marketing, and pricing/margins.

- Ideally a business should always have a living pipeline of innovation projects with some redundancy, so that a project that fails to meet the desired criteria can quickly be replaced by another that potentially does. It is also important to prevent pipeline constipation, by taking decisions as early as possible.

™ Robert Cooper

- When a project reaches the Development stage, it should be managed formally (project manager) against **a project plan** that extends to market entry to ensure that it successfully meets its technical, time and cost expectations.

- Good idea generation is essential to create a healthy pipeline and is often a much neglected area. Albert Einstein said "*Imagination is more important than knowledge*". Ideas arise mainly from:-

  - **Customer intimacy and interaction**, and
  - **Employee involvement**, in an open and receptive organisation
  - Networking, with exposure to other businesses, and technologies.

It has been estimated that about 60% of good ideas arise from the first two areas. Idea generation is facilitated by inspirational leadership and an open listening culture, with good feedback.

8. An Innovation Start up

- An idea, originating outside of an existing company, can be exploited by creating a dedicated new company (Newco) to carry it out. Incorporation allows the raising of equity or investment in the business through the issuance of shares. The company is termed "**a start up**" or, if the idea originates in an University, it is often called a "**spinout**".

- Usually the company is started by an **entrepreneur,** an inventor with "personal ownership" of the idea and a single minded vision for its exploitation.

- The new company's main assets are likely to be a mixture of the intellectual property (rights based on explicit knowledge e.g. patents, copyright, design rights and trade marks), and the inventor or entrepreneur (tacit knowledge and vision). The company's name, logo and website are also it's intellectual property. It is essential to ensure that the company owns the relevant I.P, that this covers all that needs to be protected, that there are no restrictions on the company's freedom to operate and that any special resources required for development can be easily acquired. This process is called **Due Diligence**. It is also important to ensure that the entrepreneur/inventor is motivated to achieve success, by having a significant stake in the outcome.

- The venture should be incorporated as **a private company limited by shares** (liability limited to share cost) and registered at Companies House (CH). It is not difficult, but it should always be done using professional advice and help. There are four key documents required to properly launch a company:

i. **Memorandum of Association**	Objects and powers. Authorised share capital (filed at CH)
ii. **Articles of Association**	Classes of shares, preferential rights, and investor rights. Internal management. (filed at CH)
iii. **Shareholders Agreement**	Number of shares, their price and allocation. Shareholder rights, warranties and participation.
iv. **Business plan**	Opportunity, prospects, strategy and operational plans. Finance/ refinance and exit

- **The Business plan** (similar to Diagram B) must show convincingly how the idea/invention will be developed and successfully exploited, the team responsible, how the cost of this will be financed, including second and further rounds of finance, the risks involved, the proposed exit mechanism and timing and the expected realisation value for the shareholders. Development of the idea/invention is best considered using the innovation pipeline model (Diagram D) and the risk/reward cash flow timeline (Diagram C).

- Other key questions that need addressing in the Business plan are:

  - what is unique about the innovation ?

- who will buy it and why?
- what price will it sell at and what will it cost to deliver ?
- what will be the competition and how will it be resisted ?
- when will the company start receiving income, when will it break even, and what will be the estimated valuation at exit ?

- Initially an idea/invention has very little value, but at each stage of its development in the innovation pipeline this value will grow (e.g. development of I.P., proof of principle, prototype, test marketing, and successful launch), through successful work and human creativity. These cost money, and must be financed by the founding and future shareholders. Banks are very reluctant to lend to start up ventures with no significant assets for security, but they can become involved at a later stage.

- Shares or units of ownership in the company (the equity) should be allocated to the founders to represent the agreed perceived value of their contribution. This may be capital, knowledge/Intellectual Property, or skill (technical, market and management). Spinouts from Universities will normally assign a significant quantity of shares to the institution as well as the inventor, in recognition of its host role in the creation of the intellectual property

- The capital from the initial investors is required to first secure and if necessary expand the founding I.P. and then to go through the Proof of Principle stage of the Innovation Pipeline. A second round of investment will probably be needed for the Development stage and sometimes a third round for the launch. Failure to adequately fund, at any stage, may cause the venture and company to fail.

- **Cash is the lifeblood of an Innovation Start up company**. Constant attention is required to make it available, to maximise its effect and to provide new transfusions at critical stages.

- Raising finance takes a considerable time. There are four potential sources:

+ Equity investors	**The major source is cash for shares** (3-7yrs investor time horizon). Founding and later stage investors
+ Borrowings	Unsecured loans from family/friends are often used as seed funding before company formation and later converted to equity.
+ Grants	Modest Public sector grants to help start up businesses e.g. University PoC funds, DTI and DA/RDA awards are available but demand always outstrips supply.
+ Earnings	Sales of services, based on existing company assets. There are limited opportunities and they divert attention from the innovation.

- There are several different kinds of equity investor:

a. <u>Small/medium Sums</u>

Business Angels	Private wealthy individuals, operating individually or sometimes in groups. They often help with contacts, strategy and management.
Corporate Venturers	Big companies interested in the technology development. They can provide both money and help.
Regional and University Seed Corn Venture Funds	Locally based funds often linked with regional strategies. Publicly and privately financed.

b. <u>Larger sums</u> (£1m +)

Venture Capital firms	Financed by parents or Institutions. More likely at 2nd and 3rd round financing.
Venture Capital trusts	Quoted vehicles offering tax incentives to investors. Prepared for risk.

- There are three key requirements for an equity investor to consider investing in a start-up venture. Firstly he must believe in the innovation and the entrepreneurs commitment to make it successful. Secondly, the business plan to achieve success must be credible (Due diligence) and thirdly the reward, the investors final share of the potential valuation at exit, must be commensurate with the risks.

- The founder investors usually **ask for a substantial initial share (25-40%),** as they bear the highest risk and their share of the reward **will be diluted by second and third round investors**. Inventors/entrepreneurs need to remember that that a smaller share of something, fully financed for success, is more valuable than complete ownership of an unfinanced idea.

- It is important to have a clear investment story, that remains consistent and also to regularly communicate with the shareholders.

- The Company will be governed by a **Board of Directors** granted their powers by the Articles of Association. The Directors duties are to act with skill, care and good faith in running the company, in the interests of the shareholders and creditors. Start ups usually have one or two **executive directors** (employees; one being the Chief Executive) and several **non-executive directors** (including the Chairman). The non-executive directors are chosen for their knowledge and contacts often relating to the area of business. Sometimes the major investor appoints a nominee non executive director. However, all directors are equal and must act corporately and not represent any special interests.

- Entrepreneurs, by definition, will try to see their idea right through to successful exploitation, as the Chief Executive. Inventors, however, often do not possess all the skills necessary for successful innovation and although they may take the role of Chief Executive at the proof of principle stage, where technical knowledge is the key, they will need to be replaced by someone with a broader business skill set to guide the venture through development and the company to success. This can be a difficult and

painful transition.

- Investors in start up ventures normally operate in a **time frame of 5-7 years for realisation of their added value.** This is achieved by an "**exit event**", such as:-

i.	Trade sale	Sale of all shares to a trading company
ii.	Refinancing	Sale of all the shares to a Venture Capital company (who may restrict the exit of the key management shareholders)
iii.	Initial Public Offering (IPO)	Listing or floating on the London Stock Exchange or Alternative Investment Market (AIM)
iv.	Management Buyout (MBO)	Sale to the existing management, usually involving significant Bank loans.

The timing of such an event depends on the success of the venture, the need for more finance, the needs of the investors, and market conditions.

9. Help and Encouragement

- The simplest and best form of help and encouragement is that from business friends and colleagues, who understand what you want to achieve and the kind of problems involved. Similarly, support from acquaintances in formal business networks is often available.

- Belonging to and contributing to at least one **business network** is very worthwhile. It keeps you in touch with what others are thinking or experiencing and allows you to meet people who may be able to offer advice or mutual help, and often provides a gateway to public sector help. Suitable business networks can be locally based (e.g. Chamber of Commerce or University), sectorally or technologically focussed (e.g. trade or knowledge transfer organisations) or national (e.g. CBI, IoD, EEF, etc.)

- Good organisations also encourage and sometimes subsidise their staff to belong to **professional bodies** (e.g. management, marketing, scientific, engineering, etc.), which provide regular sources of information, run events of relevance and sometimes provide training and accreditation.

- **Professional advice and help** is essential for legal matters (agreements, contracts and I.P.), financial matters (loans, solvency and tax) and registration with Companies House.

- **Advice and help** is also available from local organisations, either free or at low cost, e.g.

  - Business Performance Diagnostic and advice - Business Link
  - Knowledge Transfer and consultancy - Manufacturing Advisory Service (MAS)
    - Universities

  Advice and assistance with intellectual property is also available from the Patent Office

- **Incubators, Science Parks and University Outreach offices** can also provide varying degrees of help to clients.

- **Public sector grants** for R&D, Knowledge Transfer and Collaborations are available from the DTI and export services from UK Trade and Investment (UKTI). The first two can now be accessed locally through an RDA or devolved administration. There is also an **R&D Tax Credit** available from the Inland Revenue.

10. Summary

- Businesses must be highly aware of the environment in which they operate and the wider changes taking place.

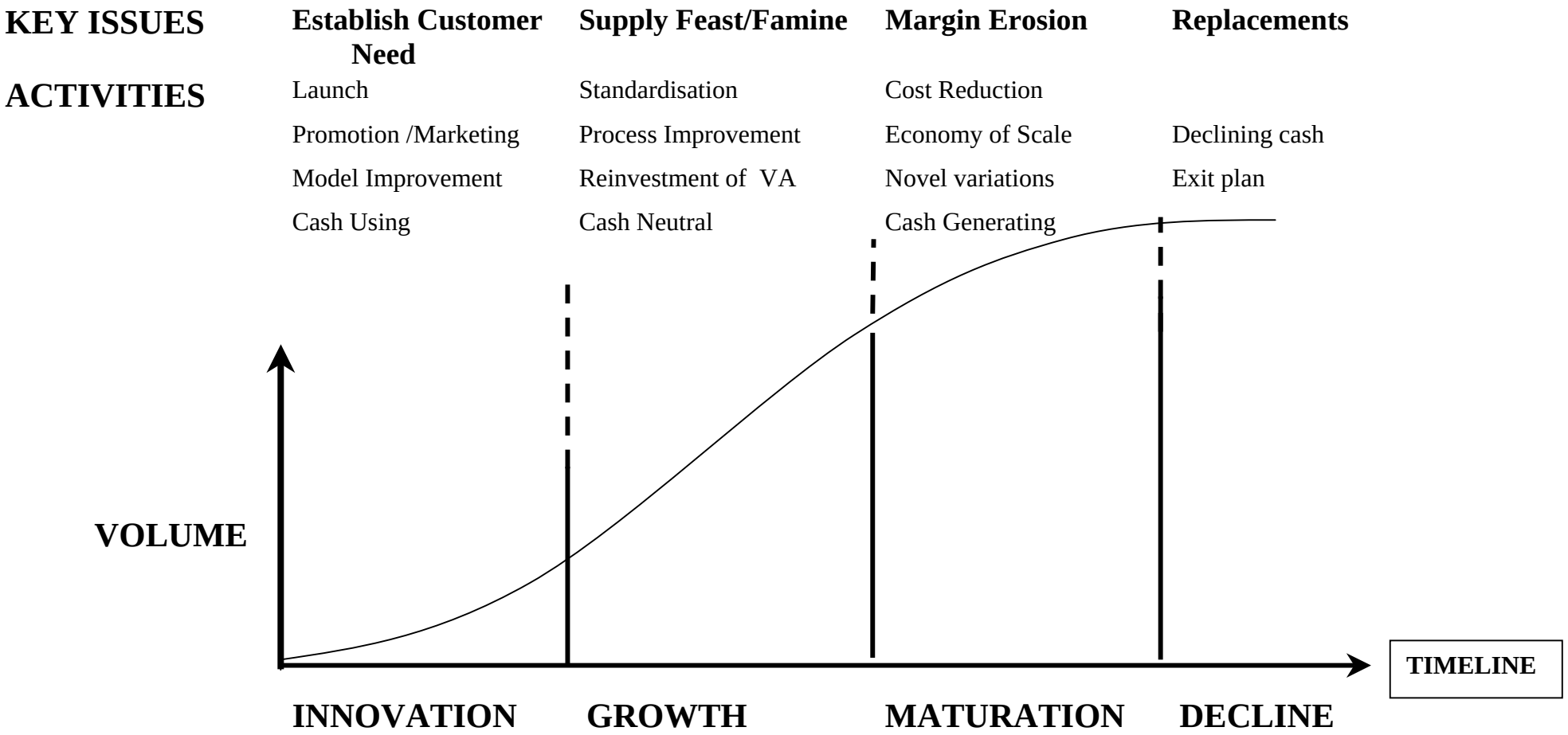
- Innovation is an essential business strategy to add value, and the only way to meet and stay ahead of the competition.

- An innovative organisation will have **awareness** of customer opportunities, **ambitious** and entrepreneurial leadership, the **ability** to generate and develop new ideas, and the **availability** of the necessary resources to achieve success.

- Innovation is a key business process and can be managed using a pipeline/funnel model, encompassing four basic stages. Movement down the pipeline is governed by evaluation at each interface or gate.

- There are risks to innovation, and these must be evaluated and considered against the potential reward. However, there are also ways to manage and reduce them. There is also significant amounts of advice and help available, to those who seek it.

- Innovations using the vehicle of a new company "start up", require additional effort to raise the risk finance through equity, probably with several rounds of refinancing, and then to provide an appropriate **exit event** for shareholders to realise the added value, resulting from a successful exploitation.



A. PRODUCT/SERVICE LIFE CYCLE

B AN INNOVATIVE COMPANY BUSINESS PLAN TEMPLATE

1. **Executive Summary**
   - Simple, clear and memorable

2. **The Business**
   - History (where the business has come from)
   - Vision and aims
   - Organisational structure

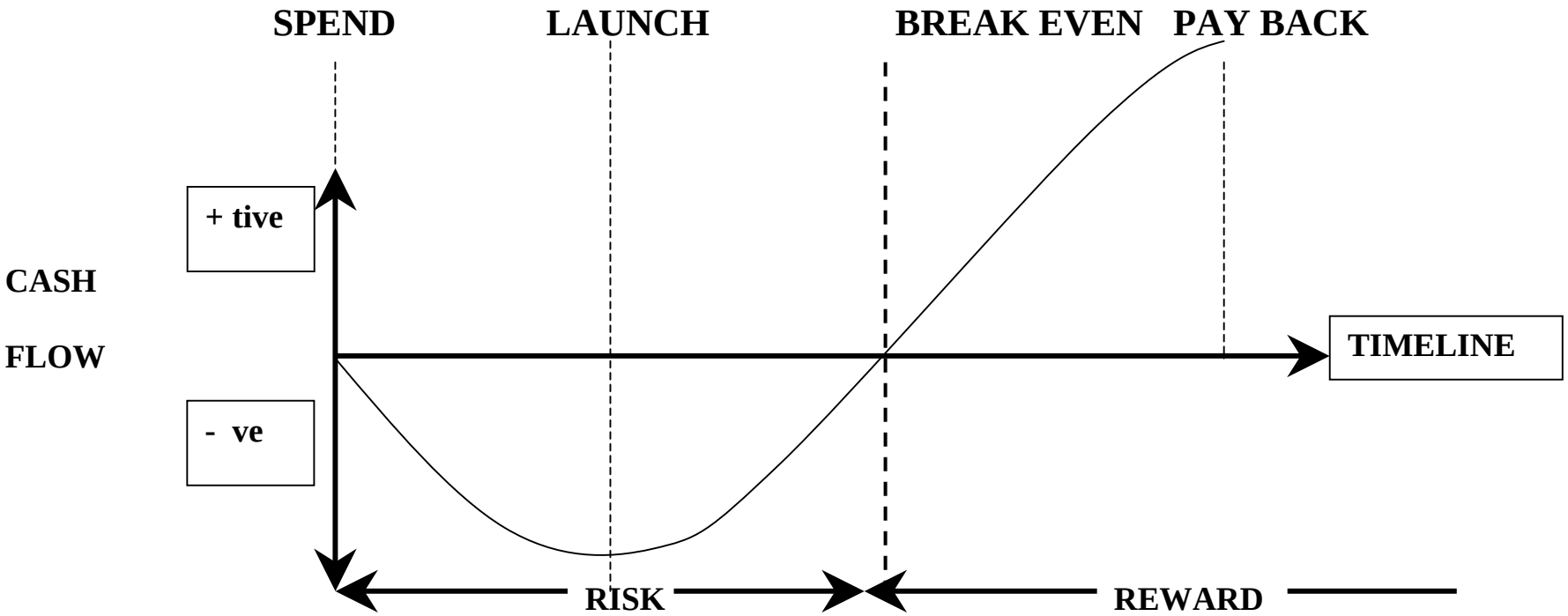
3. **Current Offerings**
   - Description of Products and Services
   - The Markets served and major customers.
   - The Competition
   - Sales/Profit/Contribution of each product/service
   - Life Cycle positions and Projections for market growth

4. **Capabilities and Strengths**
   - Key suppliers and relationships
   - Production facilities and technologies (technology platforms).
   - Market and Customer knowledge and intimacy
   - Competitive technical and other skills.

5. **Future Offerings**
   - Growth strategy (organic/collaboration/acquisition)
   - Desired new product/service goals (e.g. % sales from launches in the last 3 years ?)
   - Incremental (performance improvement) and significant/step change (growth) innovation plan, with timings.
   - The generation of ideas and management of an innovation pipeline.
   - Priorities

6. **Finance**
   - Historical results (P/L, BS and AV)
   - Strategic projections of investment, sales, cash flow and added value.
   - Development milestones
   - Risk analysis
   - Sources of finance (internal/external, debt/equity and gearing)

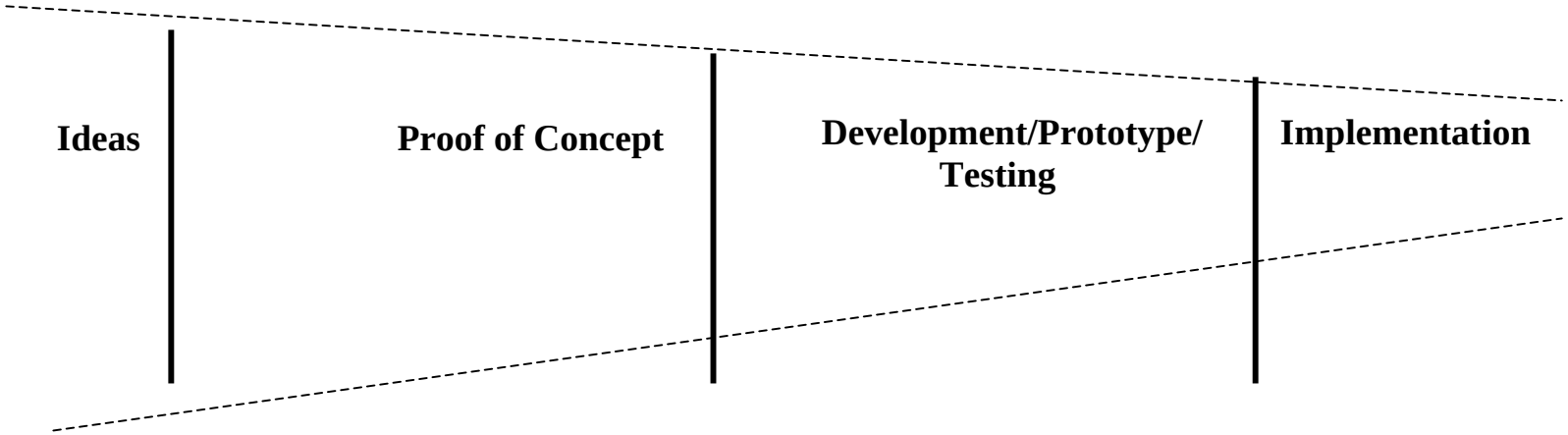
7. **Investment**
   - Investor attractiveness and return requirements
   - Covenants and restrictions
   - Investor exit strategies
   - Key players and managers and their retention/ incentivisation



C. RISK REWARD CASH FLOW AND TIMELINE

DRIVERS

- **Technology**
- **Market Needs**
- **Business Strategy**
- **Competition**



GATE	**GATE**	**GATE**
Needs	IP Position	Marketing/USP/launch
Priorities	Exploitation route	Sourcing/growth rate
Market size	Investment risk/reward	Price/benefit
Customer Benefit	Chances of success	
Availabilitv of PoC	Availability of Finance/resources	
	Portfolio Balance	

D. INNOVATION PIPELINE (FUNNEL) - STAGEGATE MODEL

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His experience and expertise are in New product innovation, Science and Technology strategy, R&D, Business-Higher Education partnerships and Networks. He has spent 35 years in the Chemical and Pharmaceutical Industry where his last post was Research Manager and Chief Scientist for ICI plc. He was awarded a CBE in the 2000 New Year's Honours List "for services to the Chemical Industry**".**

He has been an Industrialist/Advisor to the DTI, for the last seven years, where his special interests are in Innovation, Networks, Business-HE partnerships, the Chemical industry and NW regional business/science policy.

He is Chairman of several exploitation companies and the Faraday partnership Pro-Bio (industrial biotechnology) and has strong links to several Universities. He has also served on a number of National Panels.