

Standards and Intellectual Property Rights: A Practical Guide for Innovative Business

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Matthew Clarke



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Much of the IPR advice in this guide has been sourced or adapted from information on the Patent Office website and in the Patent Office publication *Patents - Essential Reading*. For a copy of this publication please contact the Patent Office.

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Introduction

This guide is directed at businesses, large or small, which develop ideas into innovative technologies, services, products and processes. It provides guidance on how to develop and use standards and intellectual property rights (IPRs) in order to increase the profitability and competitiveness of the business. This guide identifies what standards and IPRs are and what they do, how they are created, and how they can benefit business when used together. It explains the relationship between standards and IPRs, and how to use them strategically during the lifecycles of technologies, products or services. This guide also gives an insight into some of the basic features of standards and IPRs and their use. This guide cannot, and has not been developed to, answer all of the questions you might have with respect to standards and IPRs, but it has been developed to assist you in deciding the best way to make the most out of your innovations.

Intense global competition and rapid rates of innovation have led to a shortening of product lifecycles. In order to remain competitive, successful businesses are exploiting their products using a number of tools in an integrated manner. Standards and IPRs are examples of two such tools. Almost all businesses have some valuable intellectual property that is worth protecting either through one of the different types of available intellectual property rights, or by exploiting through standards. For small and medium-sized enterprises (SMEs), effective use of standards and IPRs can provide a means of standing up to bigger businesses, but the task of using standards and IPRs effectively can be daunting without the right advice. Standards and IPRs spread state of the art technology and best practice, and allow businesses to benefit from their investment. However, standards and IPRs are not widely used together in an integrated and strategic manner. An integrated strategy should lead to a more efficient transfer of knowledge, leading to greater market acceptance and increased commercial success of an innovation.

Standards enable products, processes, systems and services to be more easily designed, developed, manufactured, specified, purchased and understood. Standards can also help to develop the market for products and services based on the newest technologies. Furthermore, consumers demand ever-higher levels of safety, performance, reliability and sustainability. Companies that make the most of standardization opportunities enjoy a head start over their rivals. Through the implementation of standards, they can reduce costs, increase quality and reduce the risks they face – both technological risks and market risks. Moreover, companies can benefit from participating in the standardization process as well as in using the end results.

IPRs allow individuals and organizations to own their creativity and innovation in the same way that they can own physical property. The owner of IPRs can control and be rewarded for their use, which encourages further innovation and creativity. Products and knowledge can be protected formally and informally by many different types of IPRs. Virtually any business, large or small, will generate its own intellectual property (IP), or will use IPRs that are owned by others. The resulting rights, whether they be from internally generated IP or from externally owned IPRs, will invariably be of vital commercial importance to the business. Therefore it is essential that any business is not only aware of the IP it owns, but also has an understanding of the IPRs that can be used.

Conflicts can arise between the monopoly power given by IPRs and the need to subsume that in following a formal standard. A comprehensive business strategy will provide the maximum benefit using both methods where appropriate. Failure to understand, recognize and use the power of each increases risk, and can ultimately lead to failure, in the business.

Standards and standardization: The basics

What is a standard?

Put simply, a standard is an agreed way of doing something. Standards can be recorded and published formally, or simply be informal unwritten procedures that a company uses to maintain efficiency or gain another advantage. A standard may apply to a product, process or service. A formal standard is defined as a:

'document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context'

[Source: ISO/IEC Directives Part 2:2001,3.1]

Standards can be private, kept secret for use only by the organization that developed them, or made publicly available for anyone to adopt.

Why use and develop standards?

The benefits of using and developing standards are numerous. Standards provide confidence, reliability and comparability in the market place. They also help to build focus, cohesion and critical mass in the formative stages of a market. Standards can help to remove trade barriers, spreading state of the art technology and best practice, and reduce transaction costs between producers and suppliers. Using a standard for information, or developing a new standard for a product or service, can allow businesses to gain a competitive advantage. New standards can alert customers to the features of a product or service, for example whether it is durable, safe and/or environmentally friendly. Manufacturing products that conform to an existing standard allows businesses to tap into existing markets, presenting additional business opportunities. Standards can offer the choice of an increased number of suppliers, as well as connectivity/compatibility between products of different manufacturers. Optimized products (e.g. increased efficiency) can also result by developing new, or using existing, standards. The standards development approach is more suitable than IPRs for management processes and business methods, since IPRs can only be obtained for these products in the USA.

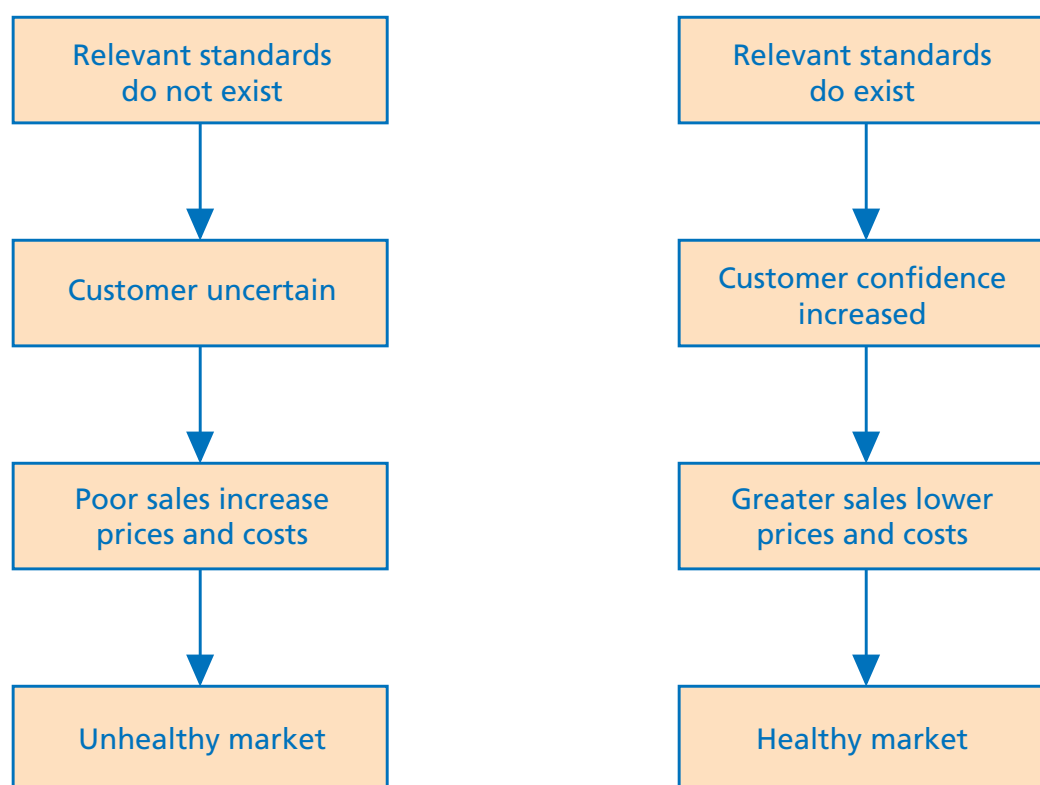


Figure 1. The potential effects of standards on a market

What advantages do standards give?

Transformation of ideas to a marketable product

Scientific concepts and emerging technologies are 'pulled through' to market by their incorporation into standards. The use of appropriate measurement technologies allows the concepts to be defined and quantified so that the standard is widely understood and accepted. Since the basis of a standard is its reproducibility, reliable measurements are essential in order to be able to define the subject matter of a technical standard. Therefore the most appropriate measurement technology should be used (see **Measurement Advice** in **Sources of Information** at the end of this guide).

Networking and access to experts

Access to international experts through, for example, a standards committee can be extremely beneficial to an organization in the development of their standard as they will gain a better appreciation of the state-of-the-art in other countries and their competitors, as well as benefiting from the collective expertise of the standards committee. Participating in the standards development process can lead to the anticipation of new standards, enabling an organization to help determine their impact on technology and markets, and therefore allowing strategic positioning of an organization. The standardization system is also unique in that it brings industrial partners together. Small and medium-sized enterprises (SMEs) in particular can enhance their status and can gain a marketing advantage. Involvement in the standards development process can help determine the content of a standard – both what should be included and what should be excluded from the standard. It can also increase know-how with respect to non-participating organizations.

Competitive advantage

Developing a new standard for a product or service is a way to apply pressure on competitors whilst gaining a competitive advantage. It enables an organization to 'raise the stakes' and alert consumers to the latest feature of a product or service, whether it be durability, safety, or other benefits. Due to the reduced costs associated with standardized products and processes, the use of standards also allows price competitiveness in the market. Using standardized products and processes reduces the amount of research needed before a product's launch, allowing a competitive advantage to be gained by permitting new processes and plants to come online sooner. It also avoids duplication of efforts and increases purchasing power.

International recognition

Involvement of standards development organizations (SDOs) in an organization's standard ensures that it receives international recognition, since the international community has invested in writing standards based upon the organization's innovation. This recognition increases the status of an organization but, due to rules regarding the inclusion of IPRs in formal consensus standards, may limit an organization's freedom to act independently and reach bilateral agreements based on their intellectual property.

Quality and reputation

Customers today are demanding better quality, and products or services that are not backed by appropriate standards will increasingly become harder to sell.

Network effects

Many technologies display network effects in which the benefits from adopting a standard increase with the number of users. The classic example is the telephone, where ownership conveys no benefit unless others are also connected; the more people on the network, the more useful the telephone becomes. When network effects are important to the buyer, a wise supplier will generally produce a product that conforms to the industry standard. If the product does not conform to the industry standard, the buyer generally finds the product less attractive. Network effect markets will be attractive targets for companies who can position their own proprietary technology (technology that is protected through IPRs) as the technical standard in that market. In some of the 'standards races' that have taken place in network technologies (such as personal computers, audio recording media, and video cassette recorder formats) the winner is not necessarily the 'best' technology with respect to technological performance. The winner is the technology that has been most effective in building a wide network of followers, which includes, for example, support products from third party suppliers (e.g. software) that conform to their standard.

Variety reduction

The number of different types of one product is reduced by standardization due to optimization of the products. This is known as variety reduction. Variety reduction leads to economies of scale that can lower production costs and therefore product prices. Variety reduction through standardization need not limit innovation; it can lower core production costs allowing organizations to concentrate on the features that are most important to customers, thereby leading to better products. Operational strategies can benefit from

standardization considerations; for example, capital tied up in product, operating and maintenance inventories may be minimized through reducing the number of independent solutions.

Meeting the requirements of European Directives

Should a European Directive be brought in that an organization's product or service falls under, they must ensure that it meets the requirements of the directive. By far the best way of doing this (but not the only way) is by developing standards or using them for information.

What are the different functions of standards?

Standards can perform any or all of the following four functions.

- **Interoperability/Compatibility** – between different parts of a product or between different products. Examples are commonplace and include nuts and bolts, railroad gauges, electrical plugs and outlets, and interoperability standards for computer and telecommunications systems.
- **Quality** – defined in terms of fitness for purpose or safety, for example performance variation, service lifetime efficiency and environmental impact.
- **Variety reduction/Optimization** (based upon best practice) – capital tied up in product, operating, and maintenance inventories may be minimized. For example, standardizing the size of a bread slice led not only to an economy of scale for commercial bakers but also to inexpensive toasters and sandwich bags. Similarly, high street stores stock suits in a range of standard sizes to exploit economies of scale.
- **Information/M Measurement** – test and measurement methods for describing, quantifying and evaluating product attributes such as material, processes and functions.

In practice, any standard may embody aspects of all four categories. For example, the different grades of petrol, four-star, unleaded and super-unleaded, are *information* standards describing the product, but the petrol grades also have quality, compatibility and variety reduction functions. Most motorists are confident that one type of four-star petrol is *compatible* with another, and so can use different petrol stations from one week to the next. Equally, these petrol grades satisfy certain *quality* standards. Furthermore, there are major economies of scale (*variety reduction*) associated with distribution of the limited range of petrol grades.

What are the different types of standard?

The different types of standard offered by standards development organizations, and their method of creation and relative cost, are summarized in [Table 1](#) (formal standards, such as international, European and national standards, as well as alternative standards-type products, such as the Draft for Development and Publicly Available Specification (PAS), are shown). The alternative products can be chosen according to need and prepared quickly. The need to define standards quickly is especially pressing in the face of rapid rates of innovation, leading to ever-shorter product lifecycles and intense global competition. In recent years the consensus process, which is based on multi-stakeholder dialogue, together with the increased demand for standards, has resulted in development times for formal

standards that industry has sometimes deemed unacceptable. In practice, the standardization process is driven by market and societal issues, and compressed timescales are often available given sufficient management and resources. As well as the standards listed in Table 1, it should be remembered that many standards are not formally drawn up, but exist within an organization's records and practices. Such informal standards are valuable to an organization's processes even if they are not published or used more widely, and the organization may gain a competitive advantage through keeping these informal standards secret.

How are standards developed?

There are three main ways by which standards can be produced.

- *De jure*, or formal, standards that are agreed upon by a standards development organization, including consensus standards and other standards-type products.
- *De facto*, or informal, standards that are produced by the unaided market.
- Standards that are produced as part of regulatory processes, known as regulatory standards.

Table 2 gives practical examples of standards, and their function and method of development.

De jure, or formal, standards

Consensus standards, also known as formal or *de jure* standards, are created as part of a voluntary process of cooperation and consensus among interested parties. These are produced either by a formally established standards body, such as the British Standards Institution (BSI), or by a recognized professional body. Committees of manufacturers, users, research organizations, government departments, academia and consumers work together to create the content of the standards. The standards organization (e.g. BSI) project manage the overall process of standardization, and may also provide guidance on standardization. Agreement is achieved through a consensus process involving committee deliberations and public consultation periods before a final vote is taken. The authority of a formal standard is high, and the diffusion of the standard is also high due to the extensive international networks employed.

The processes of transparency, integrity and inclusiveness come at a price, and achieving consensus can be slow, expensive and time consuming. In some cases consensus might not be achieved, and because of this some organizations put their products in the market in the belief that the market will eventually follow a proprietary standard (a standard containing an innovation protected by IPRs), and reserve a sum of money to pay the eventual proprietary licence fee.

Consensus standards are typically 'open', meaning that they do not contain IPRs, or contain IPRs that are designated 'Licence of Right', or fair, reasonable licensing fees are applied (see **Licensing: The basics – 'Licence of Right'** and **Tensions between IPR and standards – Remedies** later in this guide). The time taken to develop a consensus standard can vary a great deal. The target for the total development time for a formal standard is 2-3 years, but at national level the average is 4 years, at European level the average is 5 years and in the international arena the average is 7 years or more. However, if speed is important, for instance because of a short product lifecycle, or because a competitor's standard is due to be published, there are alternative standards-type products available, as shown in **Table 1**.

Table 1. Formally produced standards and alternative standards-type products

Increasing consensus and transparency	Category	Characteristics	Likely increase in cost
	<p>International/ European/ National Standard</p> <p>Draft for Development</p> <p>Technical Specification</p> <p>Code of Practice</p> <p>Published Document</p> <p>Glossary</p> <p>Publicly Available Specification</p> <p>Technical Report</p> <p>Industry Technical Agreement/ Workshop Agreement</p> <p>Privately Subscribed Standard</p>	<p>The ultimate standard for product users and specifiers, which is a detailed, reliable document that requires stakeholder consensus. Customers benefit from these standards since they are as clear as possible about the products, systems, services and materials that they buy. They also assist in making comparisons.</p> <p>A lightweight, detailed document that is not yet a formal standard, but is published with a view to becoming a formal standard. It enables customers to gain an insight into the likely content of a forthcoming formal document, enabling them to plan their business activities more constructively.</p> <p>A document published when there is insufficient support for a full international or European Standard, or when there is doubt that stakeholder consensus has been achieved. A Technical Specification (TS) can also be used where the state of the art is insufficiently stable for a full standard. It gives customers an insight into a forthcoming formal document, enabling them to plan their activities.</p> <p>Easily readable documents with industry-wide acceptance. Can cover wide subject matter, such as design, workmanship and safety practices.</p> <p>A supporting document that is generated by standards committees, but is for information only. Published Documents (PDs) can include guidance, reports and recommendations, and can aid the comprehension of formal documents.</p> <p>A referenced/indexed document that defines industry specific words or terminologies. Glossaries provide a quick and easy way to gain understanding of relevant words and terms that are used in a variety of publications and industries.</p> <p>An industry sponsored document that is produced at speed as it does not require stakeholder consensus and has dedicated resource. A Publicly Available Specification (PAS) can be detailed and specific, but will be withdrawn if its content is subsequently covered by the scope of a formal standard – progression to a formal standard may be accelerated since it has already undergone some consultation.</p> <p>An informative publication containing collected data of a different kind from that which is normally published as an international or European standard.</p> <p>A publication that does not rely on the customary technical committee structure. It is developed via an open workshop mechanism and published on the authority of the workshop. Assistance is provided in writing the business plan and delivering the secretariat duties.</p> <p>An industry sponsored project normally resulting in a tailored document for private use by the sponsoring organization. The customer gains expert knowledge and facilitation in developing their own internal documentation or standardization. Privately Subscribed Standards (PSSs) are developed through the provision of a consultancy-type service for standardization.</p>	

Table 2. Practical examples of different types of standard and their different functions

Type of standard	Function			
	Interoperability	Minimum Quality	Variety Reduction	Information
Consensus (<i>de jure</i>)	The size of paper stationery (A4 etc)	Cycle lighting	Dry battery sizes	Signs designating public facilities
Informal (<i>de facto</i>)	MicroSoft Windows®	Hotel star ratings	VHS® video tape	Recycling data
Regulatory	Reporting procedures for company	Safety of toys	Petrol grades	International road signs

[Source: Temple P, Williams G. The benefits of standards. © CEN 2002.]

De facto, or informal, standards

These standards are usually created by large and powerful companies, often in joint ventures, strategic alliances or consortia (see ***What role do consortia and other collaborative groups play in standards development?*** later in this guide). The companies release the technology and, through the widespread use of the informal standards, gain a position of market dominance. Examples are MS-DOS® and Microsoft Windows®. Although any joint ventures, strategic alliances or consortia behind a *de facto* standard have formed a consensus between themselves, the resulting standard is not known as a consensus, or formal, standard since the standard development process is not transparent or open to all interested parties. *De facto* standards are often proprietary, meaning that the standard contains IPRs for which a licence, possibly with an associated royalty fee, must be obtained. *De facto* standards were historically created because traditional standards development processes were considered too slow for rapidly changing technologies. The process for *de facto* standards can be quick and focused, but is not democratic, and rarely involves all interested parties or full consensus.

Regulatory standards

These standards are developed by interested parties and national representatives, and in general are associated with safety issues.

What are 'open' and 'proprietary' standards?

Standards that spread the standardized technology without relying on IPR protection and licensing, and are therefore free for adoption by anyone, are known as 'open' standards. Open standards are particularly used by large IT companies who wish to define the market for a new product ahead of their competitors. In contrast, 'proprietary' standards contain technology or processes that are subject to IPR protection, and therefore require licences to be obtained in order to adopt the standard (by practicing the subject matter of the IPRs it contains). Proprietary standards can be used to gain royalties from licensing of the IPRs. Open and proprietary standards strategies are discussed in greater detail (see ***Proprietary or open standards strategies?*** later in this guide). The rules associated with the inclusion of subject matter that is protected by IPRs in consensus standards are also discussed (see ***Tensions between IPR and standards*** later in this guide).

Case Study 1 – IBM personal computer

The introduction of the personal computer (PC) is an example of the ability of open standards to focus new technology and create a new industry. The IBM PC defined the product at a critical time and became the *de facto* standard for other manufacturers. Other producers and users followed it because they recognized the PC as an acceptable combination of available technologies, and, as an open standard, they could look forward to wide support and unrestricted access. Only Apple, with an existing system, held on to a separate standard in a specialist market niche. The problem for IBM was that although the open standard had given it leadership of a huge, fast-growing market, it gradually lost share as it failed to keep ahead in developing the standard. Instead it tried unsuccessfully to reassert control with a new, proprietary standard. This case study shows the strengths and weaknesses of an open standards strategy, and the trade-offs between market size and share. In continuing competition, trying to 're-close' the standard may be a futile effort.

[Source: 'Standards Strategy and Policy' by Peter Grindley. Oxford University Press. Oxford. 1995]

How are standards used and developed internationally?

Standards, unlike certain forms of IPRs (such as patents), are not territorial. In other words anyone in any country can use a standard from anywhere else. For instance, a business in Australia can choose to use a British Standard in their processes if they wish, and *vice versa*. Similarly, an African country could adopt a European safety standard if it saw benefit in doing so. The main consideration is the acceptance of the particular standard in the market and the confidence its content confers. Unlike patents and trade marks, which must be applied for in each country or region of market interest, it is not necessary to develop a standard in each of the countries in which you want to market your product. Once a standard has been developed in one country or region, it is simply a matter of marketing the standard and industry accepting and adopting it, wherever they may be. A product may need to conform to local standards for local market acceptance, or may need to comply with a regulatory standard, but this is separate to the freedom to develop a standard anywhere.

Standardization takes place at international, regional and national levels. International and regional standardization is achieved mainly through the collective efforts of national standards bodies (NSBs), which are the organizations that are legally responsible for standards in a given country. The British Standards Institution (BSI) is the British NSB and it provides a gateway for UK representation in the international and European standards organizations. The quality of British Standards ensures that they are used extensively in foreign markets and this is often an advantage for exporters. If an organization requires help in developing standards or using them for information, BSI can provide guidance on the different stages in drafting a standard, and carry out the work associated with, for example, drafting a Technical Specification (TS), or ensuring that a consensus standard is approved.

European standards organizations include the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC). CEN and CENELEC are jointly responsible for the

preparation of European standards in specific sectors of activity. The European standardization system is structured to ensure that it operates in a primarily cooperative manner, resulting in increasingly harmonized market conditions. For example, national standards bodies are obliged to replace existing national standards with European ones when these have been agreed. At the international level there are mechanisms for cooperation similar to the European ones, notably the International Organization for Standardization (ISO), which is a network of the national standards bodies of 148 countries.

Are standards legally binding?

In general there is no legal requirement to conform to standards. However, standards may be mandatory or legally enforceable if they are prescribed by statute, regulation or contract, or when used as a trade description. An example of a legally enforceable standard is a safety standard, for instance one that specifies fire-retardant properties for furniture or electrical safety requirements for mains-powered devices.

Standards: Practical use and development

How can your organization exploit standards and standardization?

Your strategy can incorporate standards in many ways. It can use existing standards as a source of information, for instance to check the current state of the technology or to determine regulatory requirements. Using proven solutions that are recorded in standards may reduce risk. Acceptance is often greater and the market larger for products that conform to standards or have standard interfaces. Therefore complying with an existing standard can allow a business to tap into a broader market as a business opportunity rather than just a requirement. The use of management system standards (such as EN ISO 9000) frequently helps companies overcome the problem of a lack of reputation and helps them integrate their activities within networks and supply chains.

Where a particular standard is not legally binding, and a business does not seek conformity to the standard, the business can 'cherry-pick' useful information from a standard that may be relevant to their particular situation. This would mean that the business would not be able to claim conformity to the standard (it may not seek to), but it would be benefiting from the standard by being able to utilize relevant information from it. It should be pointed out that in order to claim conformity to a standard, all the provisions of the standard should be adhered to.

You can also become involved in standards development, making your product or service the subject of a new standard, thereby helping to define a market or to promote international recognition. Standards are a primary route for demonstrating compliance with laws and regulations, which may impact market choice. Similarly, health, safety and environmental risks may be reduced by measuring performance against standards and demonstrating improvements. Decisions need to be made concerning whether leading the market by the development of a standard, or following the market by building upon an existing standard, will provide the most benefit to the company. Standardization can be helpful to ongoing research because it clarifies an otherwise hard-to-understand technology, creates interest and publicity for an emerging technology, and it may resolve issues that are inhibiting research from going forward.

Figure 2 gives examples of some of the questions that should be asked when considering standards in relation to a product or process.

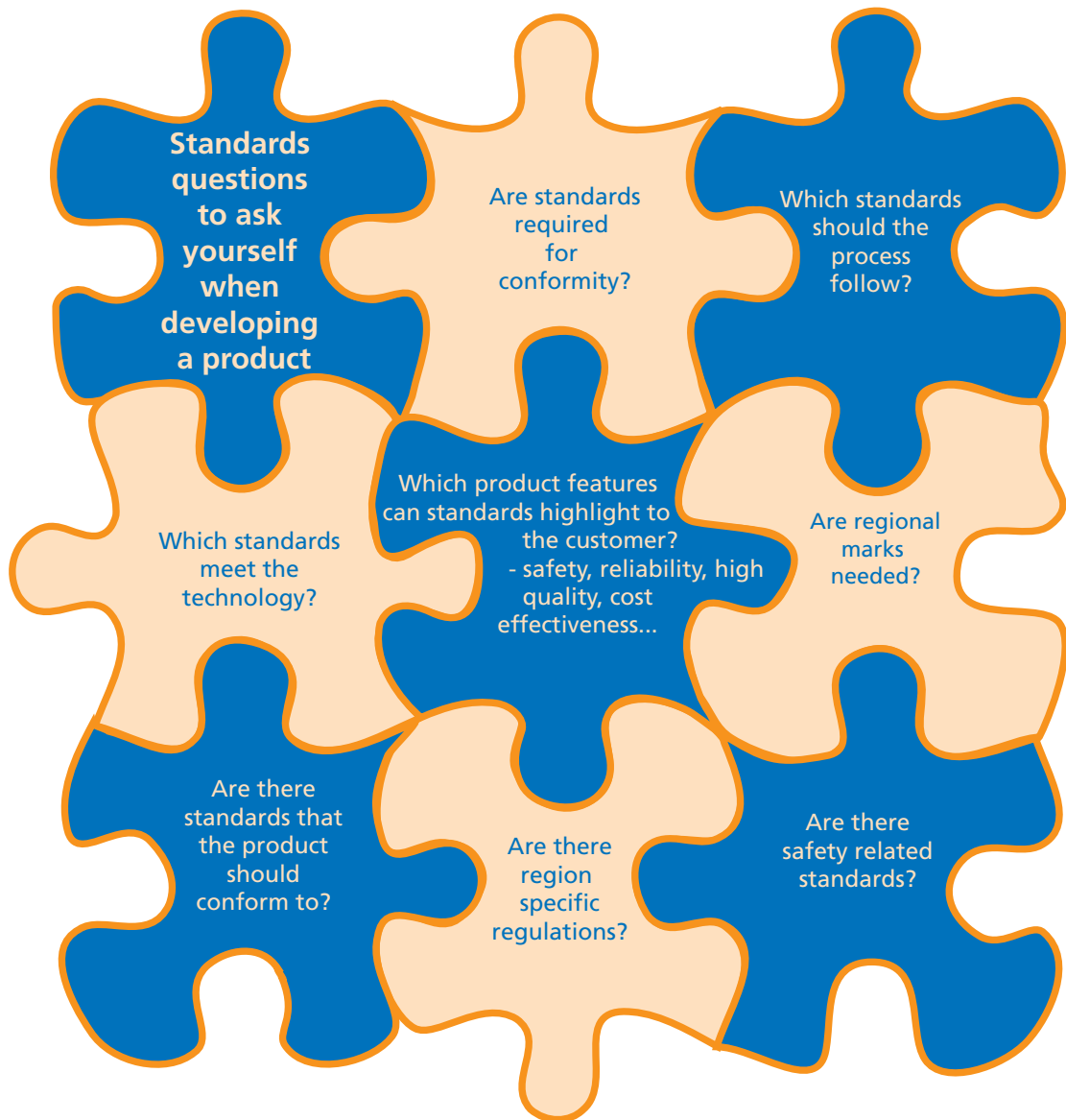


Figure 2. Questions to consider when developing a product

The following market strategies relate to standards and should be applied when developing a product.

- Market identification – influence a standard or define a new one?
- Requirements analysis – does the product need to be interoperable, portable, or conform to existing standards?
- Product design – which standards should be used to design a product faster?
- Product roll out – can awareness be built through a standards process?

Figure 3 shows how standards can be used and developed.

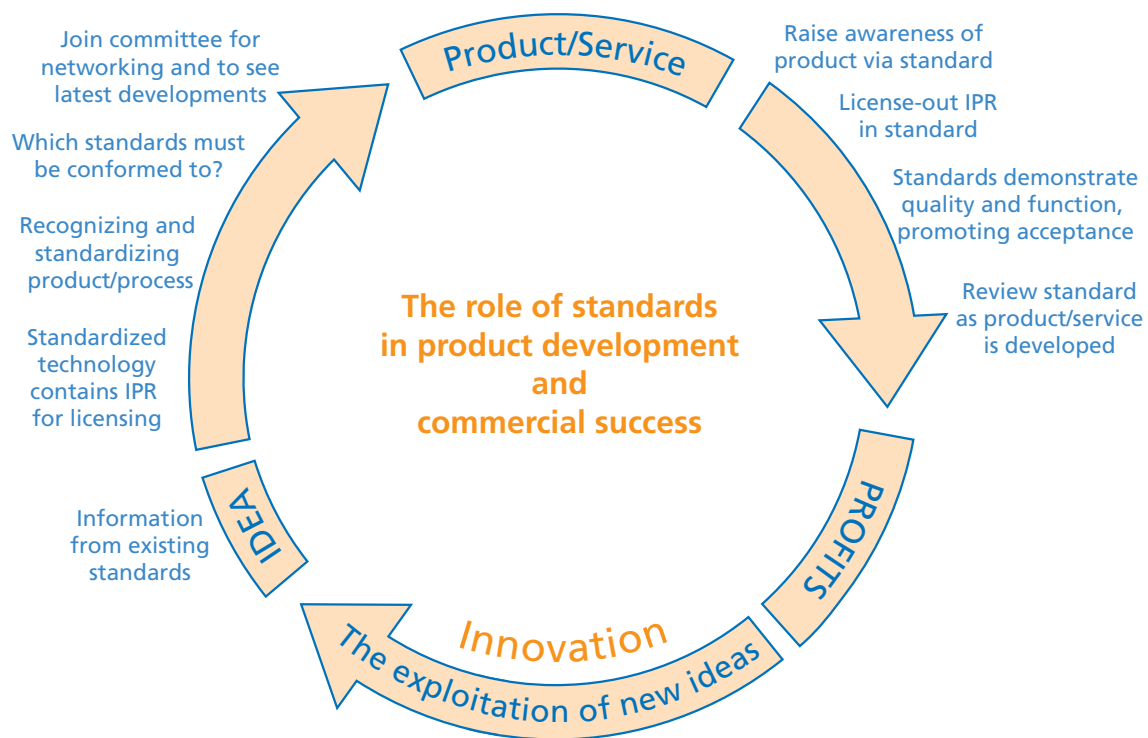


Figure 3. Use of standards in product development

Should an organization develop a consensus standard or a *de facto* standard?

The market power of organizations is a determining factor in their decision to develop consensus or *de facto* standards in order to exploit their product or processes. Whereas in markets with many small and medium-sized enterprises (SMEs), the probability of establishing a *de facto* industry standard successfully is low, it is much higher in markets that have a small number of organizations with a very high market share. However, many large organizations are more likely to join consensus standardization processes because of relatively lower costs and higher benefits, although this is largely dependent on the sector in question (e.g. 'high-tech' electronics and communications companies are often less likely to join the consensus standardization process, opting instead for the consortia route). The value of standards depends on the level of reassurance they give, therefore consensus standards may have greater value than single-company-defined *de facto* standards, though not necessarily greater than consortia-defined *de facto* standards. Whatever the type of standard, publication of the standard is not enough to create economic benefits; the value to business comes when a standard is used, and therefore marketing of the standard is necessary. The British Standards Institution (BSI) can advise on the most suitable method of developing standards for an organization (see **Sources of information** at the end of this guide for BSI's contact details).

What role do consortia and other collaborative groups play in standards development?

Consortia are collections of companies, organizations and/or individuals who come together due to similar strategic standardization goals. *Strategic alliances* and *joint ventures* are similar to consortia, but smaller, perhaps consisting of only two members. In some cases, formally chartered groups develop consortia standards. In other cases, two or more companies may informally work together towards a common standard because it meets their business goals at the time. Consortia standards are characterized by the need to develop standards quickly enough to meet market demands, or to harmonize or differentiate requirements within a specific industry. They often do not need to have lengthy discussions over the mission and intent of the proposed standardization activity – an organization's presence is, in many cases, proof of a general agreement. A consortium succeeds or fails by its ability to attract members to accomplish its technical agenda. It is usually funded by its membership – members are willing to pay for the ability to determine the specification. The members in consortia are usually organizations that have an interest (product or service offering) that relies upon completion and wide acceptance of a specification. Whereas voluntary consensus standardization processes have openness of participation and a balance of interest, consortia are self-selecting for a particular technology specification. Consortia standardization was initially created to produce standards faster than it is often possible to with consensus standardization. A consortium does not have to cover a broad spectrum – it can focus on and solve only those problems it wishes to solve.

Consortia and alliances serve the need of the IT industry in particular, stabilizing the market in a time of shortened product lifecycles and rapid market change. The formal standards arena is seen to provide stability, while consortia and alliances serve a need for defined and structured faster change. However, most formal standards development organizations have provisions for quickly issuing pre-standards and alternative standards-type products when time is of the essence. Typically, pre-standards have a finite lifespan, but they do serve a purpose until a final formal standard can be approved.

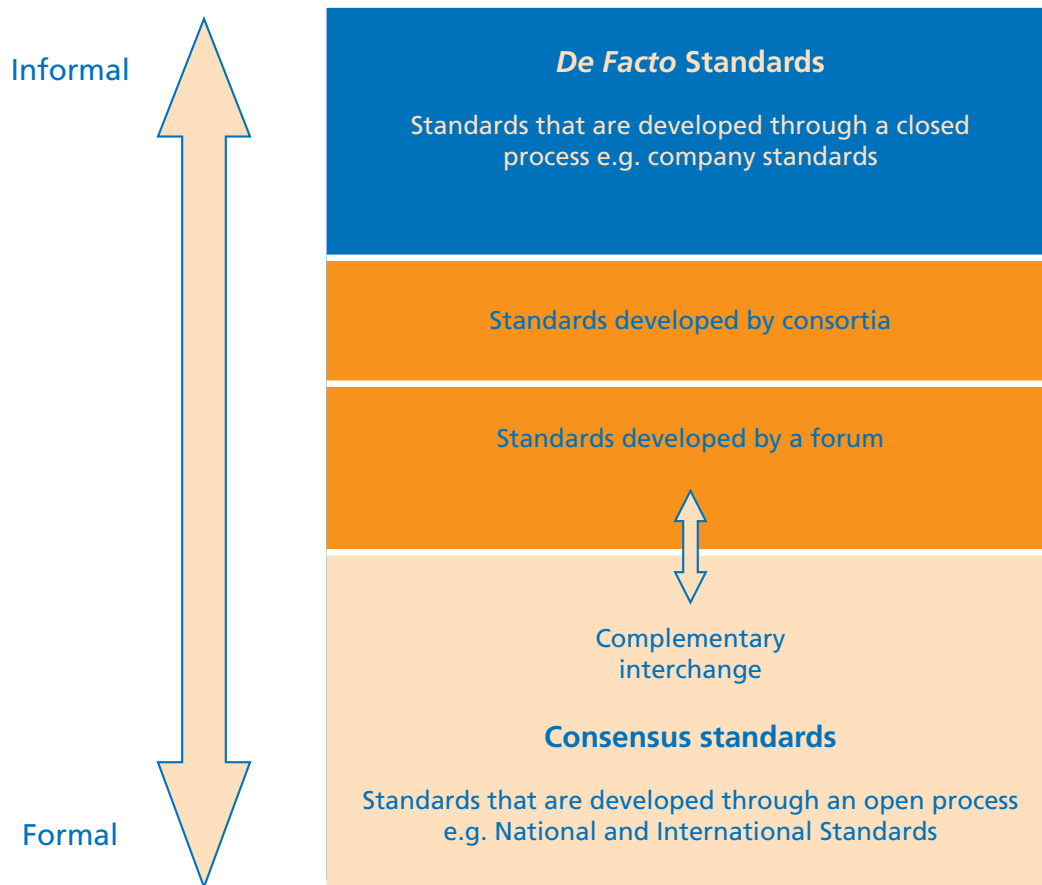
A *forum* is a group set up to promote industry cooperation and market awareness. Likely members include representatives from industry, research organizations and government. Standards developed by a forum ensure openness and transparency. Forums accelerate the convergence of interoperability standards (e.g. through developing interoperable technologies to lead the technology to its full potential). Standards developed by a forum can enter the formal (consensus) standardization process. Similarly, existing consensus standards can be used to upgrade forum standards. Therefore the forum method and the consensus methods can be seen as complementary.

Consensus standards versus *de facto* standards – a graduated scale

Figure 4 positions consensus and *de facto* standards at opposite ends of a scale based upon the inclusiveness and transparency of their development process. Consensus standards, at one end of the scale, are transparent and developed by balanced interests, while *de facto* standards, at the other end of the scale, are formed by a closed process with limited membership (perhaps by one dominant company). In between the extremes are standards developed by a forum, which can enter the formal standardization process and are therefore complementary to consensus standards, and consortia standards that involve consensus within a

limited strategic group.

When considering your standardization strategy, you should weigh up whether forming alliances with other organizations would be beneficial by increasing the impact of the standard. This will be related to your strengths (or weaknesses) as a business and the likely impact of the technology on the market. For example, a small company with limited resources may find it beneficial to collaborate with one or more other companies to strengthen their position. A standard for a revolutionary technology might require industry collaboration for widespread acceptance, whereas a standard for a small development to an existing product could suitably be developed by a single, small business.



[Source: Adapted from 'A Perspective on Standardization and Intellectual Property'. A presentation by Toru Yamauchi. Ministry of Economy, Trade and Industry, Japan, 2003]

Figure 4. The position of different standards on a scale based upon the inclusiveness and transparency of their development process

Intellectual property rights (IPRs): The basics

What is intellectual property?

Intellectual property, often referred to as IP, allows people and organizations to own their creativity and innovation in the same way that they can own physical property. The owner of IP can control and be rewarded for its use, and, in the case of patents and some other forms of IP, the knowledge is made publicly available rather than keeping it a trade secret, encouraging further innovation and creativity to the benefit of us all. Material covered by IPRs is usually the result of creative skill and/or significant labour and/or investment, and without protection, it would often be very easy to exploit material without paying the creator. In some areas IP gives rise to protection for ideas, but in other areas there will have to be more elaboration of an idea before protection can arise. It will often not be possible to protect IP and gain IPRs unless they have been applied for and granted, but some IP protection, such as copyright, arises automatically without any registration, as soon as there is a record in some form of what has been created.

Why use and obtain IPRs?

New products, brands and designs appear regularly on the market and are the result of substantial financial investments. Protecting your intellectual property can allow you to fully capture the return on your investment, and prevent others from benefiting from your hard work. IPRs can also provide a vehicle for exploiting IP assets in a variety of ways, sometimes by outright sale or assignment, but also through licensing agreements and as a bargaining tool when negotiating with other companies. Furthermore, capital for development can be raised by using IPRs as security. Even companies that choose not to do anything about their own IP interests still need to be aware of the rights of others to avoid infringement and expensive litigation. The use of IPRs can include searching IPR records for business or research partners or employees, avoiding or licensing-in other existing IPRs, and checking competitor's activity.

Ignoring the intellectual property inherent in your business opens up the possibility of competitors taking advantage of your technical innovations, business ideas, goodwill and reputation in the market. If you have not taken steps to protect your company's intellectual property, you may lose the opportunity to forge business alliances. Your negotiating strategy may be weakened, the possibility of arranging profitable licensing deals may be considerably reduced and your ability to obtain capital or investment finance may be eroded.

What are the different types of IPRs?

New developments can be protected through formal IPRs, such as copyright, trade marks, designs and patents. Informal methods, such as know-how, speed-to-market, confidentiality, and secrecy, also play a role. Which options, or combinations of options, are chosen will depend on a number of factors, as explained in *IPR: Practical use and development* and *Strategic use and development of standards and IPR* later in this guide. There are four main types of formal IPR, and they are as follows.

- **Patents** – for inventions, new and improved products and processes that are capable of industrial application.
- **Trade marks** – for brand identity of goods and services, allowing distinctions to be made between different traders.
- **Designs** – for appearance of the whole or a part of a product, resulting from the features of, in particular, the lines, contours, colours, shape, texture or materials of the product itself or its ornamentation.
- **Copyright** – for material, for example literary and artistic material, music, films, sound recordings and broadcasts, including software and multimedia.

There are important distinctions between the different types of IPRs, in particular between the length and breadth of protection each offers and whether the right is automatic or needs to be applied for.

Patents

What is a Patent?

Patents protect new and inventive (non-obvious) technology.

A patent for an invention is granted to an inventor, giving the inventor the right for a limited period to stop others from making, using or selling the invention without the permission of the inventor. When a patent is granted, the invention becomes the property of the inventor that, like any other form of property or business asset, can be bought, sold, rented or hired.

What kinds of things do patents cover?

Patents are generally intended to cover products or processes that possess or contain new functional or technical aspects; patents are therefore concerned with, for example, how things work, what they do, how they do it, what they are made of or how they are made. The vast majority of patents are for incremental improvements in known technology – evolution rather than revolution. The technology does not have to be complex in order for it to be patented.

Are there any conditions that an invention must fulfil?

To be patentable in the United Kingdom an invention must:

- **Be new** – the invention must never have been made public in any way, anywhere in the world, before the date on which an application for a patent is filed. Being made public includes written or oral disclosure or use of the invention in public where people could see how it works.
- **Be inventive** – an invention is inventive if, when compared with what is

already known, it would not be obvious to someone with a good knowledge and experience of the subject.

- **Be capable of being used in any kind of industry** – this means that the invention cannot be purely theoretical; it must be possible to apply the invention for practical purposes. ‘Industry’ is meant in its broadest sense as anything distinct from purely intellectual or aesthetic activity. It does not necessarily imply the use of a machine or the manufacture of an article.
- **Not be ‘excluded’** – in general, an invention is excluded if it is either abstract (e.g. discoveries or scientific theories) or non-technical (e.g. aesthetic creations or presentations of information). If the invention involves more than these abstract aspects so that it has physical features (such as a special apparatus to play a new game) then it may be patentable. Software that offers a technical advantage can now be patented and, in the US only, business methods are also capable of protection. Other inventions that are not patentable include new animal or plant varieties; methods of treatment of the human or animal body by surgery or therapy; or methods of diagnosis. Inventions also must not be contrary to public order or morality. If you are not sure if your invention is or isn’t excluded, contact the Patent Office (see [Sources of information](#)) or ask a patent agent.

When should you apply for a patent?

There are no rules on when to apply, except that your idea must be secret on the day the patent office receives your application – known as the ‘filing date’.

While applying early may make sure you are ahead of anyone else who might come up with the same idea, there may be commercial reasons for waiting until you have a prototype and are ready to market your product. Also, if you apply too early and then decide to make changes to your invention, it will not be possible to change the original description at a later date, although you could file a fresh application within a year and keep the original filing date, which is known as the ‘priority date’, for the material common to both applications – see the Patent Office’s *Patents applications guide*. Once you have submitted your application for a patent, you have an 18-month time period to withdraw your application before it is published. This publication releases details of how the invention works to the general public. Before that date, each patent office holds the information in confidence.

It is up to you to decide the best time to apply for a patent, but professional advice from a patent agent could be very helpful.

Do UK patents give protection abroad?

No. Patents are territorial rights; a UK Patent will only give the holder rights within the United Kingdom. However, if you are granted a patent in any country, including the UK, although it doesn’t stop others using your invention elsewhere, it does prevent the importing of a product that is the same as yours from a country where you don’t have patent rights into a country where you do. The general principles of patent protection are recognized almost everywhere in the world. Even though conditions may vary considerably, international agreements do exist that require member countries to open their own patent systems to people who live in other member countries. At present there is no such thing as a ‘world patent’. If you think that you should obtain patent protection outside

your own country, you have two possibilities:

- file a patent application for each country in which you wish to obtain protection; or
- use a procedure that allows you to obtain protection in a number of countries by filing only one application.

The following are examples of procedures that may be used in order to obtain protection in a number of countries by filing only one application.

- **International applications** – in order to get protection abroad, you would normally have to make separate national applications in each country, which can be very complicated and expensive. However, the Patent Cooperation Treaty (PCT) aims to simplify filing on an international scale. By filing a single application under the PCT, you can get protection in a number of the member countries of the treaty. When filing an application under the PCT, you must indicate the PCT contracting states in which your international application is to have effect. For an up-to-date list of member countries, visit the World Intellectual Property Organization (WIPO) website (see *Sources of information* at the end of this guide).
- **European applications** – most western European countries, including the UK, have signed up to the European Patent Convention (EPC). A single application filed under this convention will allow you to get protection in the member countries. For an up-to-date list of member countries, visit the European Patent Office website (see *Sources of information* at the end of this guide).

For further information on applications under the PCT and EPC, contact the UK Patent Office.

Copyright

What is copyright?

Copyright gives the creators of a wide range of material economic rights that enable them to control the use of their material in a number of ways, including making copies, issuing copies to the public, performing in public, broadcasting and online usage. Copyright also gives moral rights to the creator, such as the moral right to be identified as the creator of certain kinds of material, and the moral right to object to distortion or mutilation of it.

Does copyright have to be applied for?

No. There is no official register for copyright. It is an unregistered right (unlike patents, registered designs and trade marks), and the creators of such works automatically acquire the rights. Therefore, there is no official action to take (no application to make, forms to fill in or fees to pay). Copyright comes into effect immediately, as soon as something that can be protected is created and 'fixed' in some way, for example on paper, on film, via sound recording, as an electronic record on the internet. Ownership normally rests with the creator but there can be situations (such as employment contracts), which affect this.

The types of works that copyright protects are:

- original literary works (such as novels, instruction manuals, marketing brochures, computer programs, lyrics for songs, articles in newspapers,

some types of databases), but not names or titles (see *Trade marks*);

- original dramatic works, including works of dance or mime;
- original musical works;
- original artistic works (such as paintings, engravings, photographs, sculptures, collages, works of architecture, technical drawings, diagrams, maps, logos);
- published editions of works i.e. the typographical arrangement of a publication;
- sound recordings, which may be recordings on any medium (such as tape or compact disc), and may be recordings of other copyright works (such as musical or literary);
- films, including videos; and
- broadcasts.

All of the works listed above are protected by copyright, regardless of the medium in which they exist, including the internet. It should be noted that copyright does not protect ideas, or such things as names and titles. Copyright protects the way the idea is expressed in a piece of work, but it does not protect the idea itself.

As the originator of a work, it is most important that you can show when the work and the consequential copyright were created. One way of doing this is to deposit a copy of the work with an acknowledged representative, such as a bank, solicitor or notary, so that the date and time of deposit are recorded.

Alternatively, you could send a copy of the work to yourself by registered post (which gives a clear date stamp on the envelope), leaving the envelope unopened on its return, thus establishing that the work existed at that date and time. It is also a good idea to mark copyright work with the copyright symbol '©' followed by the creator's name and the date, which should warn others against copying it, but it is not legally necessary in the UK.

Does copyright give protection abroad?

Yes. Internationally agreed conventions mean that copyright has effect in member countries. In order to benefit from automatic protection, it is sometimes necessary to use the symbol '©' followed by the creator's name and the date.

Trade marks

What is a trade mark?

A trade mark is a sign by which a business identifies its products or services and distinguishes them from those supplied by competitors. A sign can include, for example, words, logos, pictures, or a combination of these. A trade mark is a badge of origin and is a marketing tool, the purpose of which is to make a connection, in the mind of the customer, between the particular products or services and the company.

To be registered as a trade mark, a sign must:

- be distinctive for the goods or services that you are applying to register it for; this means that, when seeing the sign, a customer can immediately link the goods or services to a particular manufacturer/supplier. Therefore,

commonly used words are generally not acceptable, except when used in a slogan;

- not be deceptive as to the geographical origin or to the nature, quality or other characteristics of the product or service. Also, the sign must not be contrary to law or morality;
- not be similar or identical to any earlier marks for the same or similar goods or services.

To be registered in the UK, it must also be capable of being represented graphically – in words and/or pictures. Trade marks are registered against a defined specification of goods and services. Trade marks can confer an indefinite monopoly if the mark is used continuously in the course of trade.

Remember that registration of a company name or a domain name for the internet is not the same as registering a trade mark; the requirements are different.

Do UK trade marks give protection abroad?

No. Trade marks are territorial rights; a UK trade mark will only give the holder rights within the United Kingdom. Depending on where you want to protect your mark, you must apply to the appropriate national or international organization.

- In the United Kingdom you should apply to the [UK Patent Office](#).
- For a European Community Trade Mark, which gives protection throughout the entire European Union, you should apply to the [Office for Harmonization in the Internal Market \(OHIM\)](#), either directly, or via the UK Patent Office (see *Sources of information* at the end of this guide).
- If you wish to apply for protection in a number of international countries (under the Madrid system of international registration) it is necessary to be the owner of a registered trade mark or to have filed a request for an identical national trade mark. For further information, consult the [World Intellectual Property Organization \(WIPO\)](#) website (see *Sources of information* at the end of this guide).

If you wish to protect your mark in particular individual countries, you should apply to the Intellectual Property Office for that country. As procedures vary from one country to another, you may wish to consider employing the services of a qualified trade mark (or patent) attorney, sometimes also called a trade mark agent. A list of such attorneys may be obtained from the [Institute of Trade Mark Attorneys \(ITMA\)](#) (see *Sources of information* at the end of this guide).

Designs

Designs are concerned with the appearance of a product – features of shape, configuration, texture or materials that are not dictated by functional considerations. There are two types of IPR for design: ‘unregistered design right’ and ‘registered design’.

Unregistered design right

What is unregistered design right?

Unregistered design right is an IPR that applies to original, non-commonplace designs of the shape or configuration of products. Unregistered design right is not a monopoly right – it is a right to prevent copying. A design right is property that, like any other business commodity, may be bought, sold or licensed.

Do all designs qualify for unregistered design right?

No. The design must be the shape or configuration of a product. Two-dimensional designs, such as textile or wallpaper designs, will not qualify, although these qualify for copyright and possibly registered design protection. Also, the design must be new and must have individual character i.e. an informed observer would readily form the overall impression that it can be distinguished from earlier designs.

Does unregistered design right have to be applied for?

No. Unregistered design right is like copyright in that the protection arises automatically when the design is created. You do not have to apply to register design right, but it may be wise to keep a note of when the design was first recorded in material form, and when articles made to the design were first available for sale or hire. This information may be useful if someone challenges your rights in the design, or if you believe someone is infringing your rights and you wish to take the alleged infringer to court.

What protection does unregistered design right give?

Unregistered design right gives protection for ten years after the first marketing; it is an 'exclusive right' for five years after first marketing, and then becomes subject to licences of right for the remaining five years of its term. This means that, in general, during the first five years unregistered design right is infringed upon by unauthorized trading in such products. The unregistered design right owner has the right to take civil action in the courts, seeking damages, an injunction or any other relief available for the infringement of a property right. During the final five years, anyone will be entitled to a licence to make and sell products copying the design. However, the rights owner will not be obliged to make design drawings or know-how available to the copier.

Are there any exceptions to unregistered design right?

Yes. Design features enabling one product to be functionally fitted or aesthetically matched to another get no protection. These so-called 'must-fit' and 'must-match' exceptions have been provided to ensure that competing designs for spare parts cannot be kept out of the market. These exceptions mean that competitors cannot be prevented from copying any features of a protected design that enable their own design to be connected to, or matched with, existing equipment designed by someone else. However, competitors will infringe upon unregistered design right if they copy features of a protected design where there is no need to do so.

Does unregistered design right give protection abroad?

No. Unlike copyright, unregistered design right is effective only in the United

Kingdom. There is a similar right in the European Community, with a lifespan of three years. Protection may be available in other countries under, for example, petty patent or registered design systems, but usually any protection will not be given automatically and must be applied for.

Registered design

What is registered design?

A registered design is a monopoly right for the appearance of the whole or a part of a product resulting from the features of, in particular, the:

- lines,
- contours,
- colours,
- shape,
- texture, and
- materials of the product or its ornamentation.

To qualify for registration, a design must:

- **be new** – it must not be the same as any design which has already been made available to the public; and
- **have individual character** – the overall impression it produces on an informed user of the design must differ from the overall impression produced on such a user by any design which has already been made available to the public. In assessing individual character, the degree of freedom of the designer in creating the design is taken into account.

Designs cannot be registered if they are:

- concerned only with how a product works;
- for parts of complex products that are not visible in normal use; or
- contrary to law or morality.

A registered design is additional to any design right or copyright protection that may exist automatically in the design.

What are the benefits of design registration?

A registered design:

- gives the right to take legal action against others who might be infringing upon a design, and to claim damages. The fact that a design is registered may be enough to deter any potential infringement;
- may be synonymous with branding of the company's products and image;
- in the UK may be the first step towards international protection.

Registration is relatively quick, cheap and simple.

Does UK registered design give protection abroad?

No. However, you can apply to OHIM for a Registered Community Design, which covers all the countries of the European Union (EU) and lasts twenty-five years.

There is no such thing as an all-embracing international registration for designs, however there is a registered design application procedure that was created by the Treaty of The Hague, which gives protection in all signatory states. The application procedure is administered by WIPO. If you want to protect your design outside Treaty of The Hague signatory countries, you generally have to make a separate application to each country in which you want protection.

Know-how

What is know-how?

The term know-how is used to broadly describe practice knowledge acquired through experience, and includes industrial information and data, including confidential information and trade secrets. Know-how encompasses useful information such as 'know-who' and 'know-where'. Know-how includes formulae, techniques, business and marketing plans intended for internal use, and all other intellectual property not protected in other ways that is particular and essential to the operation of the business.

Does know-how have to be applied for?

Unlike some other forms of IPR, there are no formal application or registration procedures for protecting know-how. Instead, know-how is protected by keeping it secret, restricting access to it and only making disclosures to parties who formally agree to be bound by the strict terms of a confidentiality agreement. Trade secret protection is possible only if a company can put its product before the public and still keep the underlying technology secret. If an expert can understand and learn what your invention is by analysing the product, then a trade secret will not be the appropriate protection mode. Usually only formulae (e.g. the flavourings in Coca-Cola[®], or the proportions of ingredients in foods, cosmetics and processes) can be protected as trade secrets after the products are on the market. In some industries, particularly where the innovation is embedded in processes, trade secrets may be a viable alternative to patents. However, if your invention is capable of being reverse engineered (finding out how an invention works by taking it apart), it should be protected by a patent.

How is know-how maintained?

Know-how can be broadly protected and can last indefinitely. However, if the know-how is discovered independently by someone else, the other person cannot be prohibited from using it, licensing it to others and possibly gaining IPR protection and preventing others from using it. Therefore the decision to protect intellectual property as know-how, rather than seeking other IPR protection, should be carefully considered.

Case Study 2 – New antennae for mobiles

Wireless innovator Sarantel Limited has patented a new antenna, PowerHelix®, which provides a consistently low level of electromagnetic energy for mobile phone users. Other benefits include: extended battery life, improved signal reception and improved sound quality. Before going too far into product development, Sarantel first carried out patent searches to ensure that the idea they were seeking to exploit was not already covered by other products, and once they had a prototype, Sarantel made sure they further protected it by registering its name as a trade mark. They are now exploiting its extensively patented technology through licensing both patents and trade marks.

IPR: Practical use and development

A protection strategy can incorporate IPRs in many ways. Existing IPRs can be used as a source of information, for instance to check the current state of the technology or a competitor's activity. IPRs can also be developed to protect an invention and, through licensing, can be used to raise capital or create a bargaining position with a competitor.

Figure 5 shows how IPRs can be developed and used.

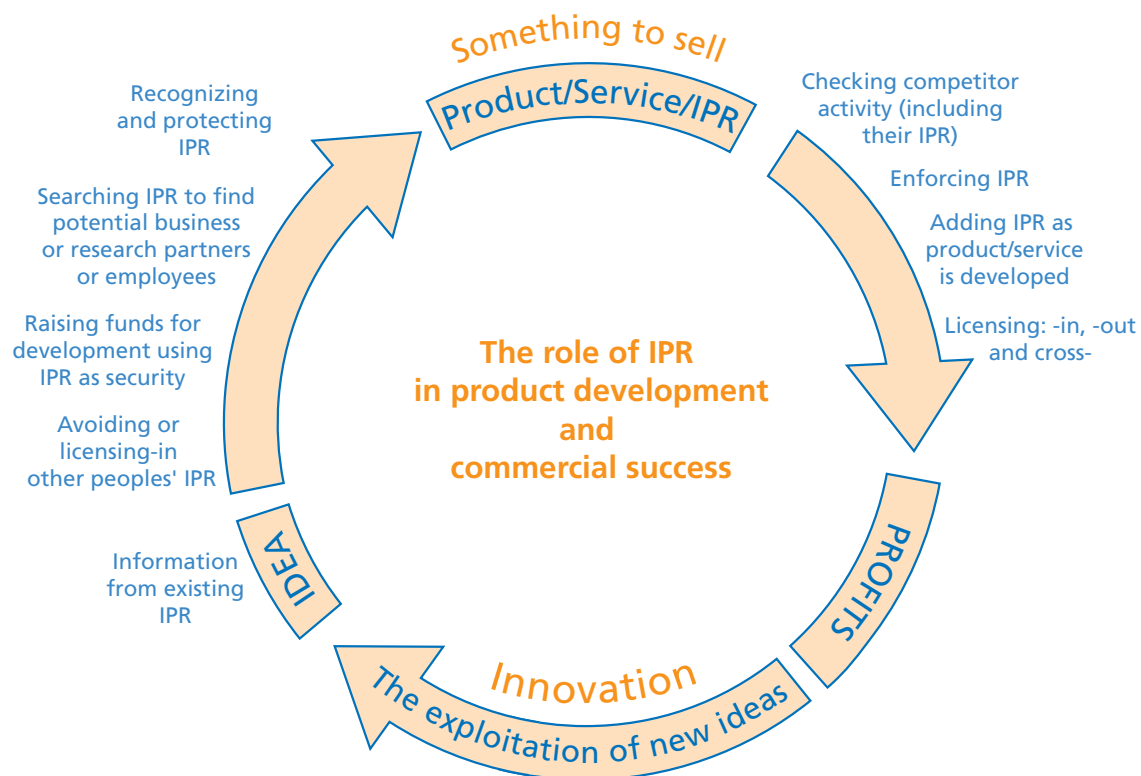


Figure 5. Use of IPR in product development

Which type of IPRs are right for you?

It can take up to four-and-a-half years to obtain a patent, and part of the application process involves publishing the specification describing your invention for anyone to see before the patent is granted. Bearing in mind that you cannot take action against anyone until a patent has been granted, if it's granted at all, a patent might not be the best answer. This is especially true if you need to

market your invention quickly for competitive advantage. While patents are important to many manufacturers, other types of IPR are more relevant to other sectors. Service-related businesses rely less on patentable technology and more on brand protection and copyright, whilst creative industries are heavily dependent on copyright. If your invention is such that, from the moment you put it on the market, it will be possible to determine how it is made through, for example, analysis or reverse engineering, then in order to protect your IP you have no alternative but to patent it. However, you may have invented a process that you have decided to keep secret rather than patent it, as it would be impossible for anyone to discover the process details from the product sold.

Combine different types of IPR

It is important to realize that more than one type of IPR may apply to the same creation. Consider and evaluate all your options. An effective protection strategy for your business may involve a range of different IP options. Using several IPRs can give you layers of protection for your investment and strengthen your position in the market. For example, a patent can protect your product's function, while a registered design can protect its appearance and a registered trade mark can help set it apart from similar products.

Is your idea secret?

The invention must not be made public too early. If the invention is revealed in any way – for example by word of mouth, demonstration, advertisement, or an article in a journal – before a patent is applied for, the invention is made public. This could mean that the possibility of being granted a patent is lost (except in the US where there is a grace period of 12 months during which a patent application can be made). Know-how is also based upon secrecy and this secrecy must be maintained for as long as you wish to benefit from this particular IPR. If there is a need to talk to someone, such as a potential business partner, before developing IPRs, a confidentiality agreement should be signed first. A solicitor or patent agent can prepare this type of agreement for you.

Professional help

The basis of a UK patent is a legal document called a 'Specification'. Its content decides not only whether a patent can be granted, but also exactly what the rights of any patent that is granted cover. You can prepare a specification and apply for a patent yourself, but since the strength of a patent is affected by how well the patent has been drafted, if you do not know about patent issues, you should use a chartered patent agent. The greater the potential commercial value of an invention, the more advisable it is to get professional help. It is the sad experience of many applicants who do not employ professional advice that their granted rights are not adequate for their needs, or that it is too easy for a competitor to design around them. Patent agents can also advise on all other forms of IPR, such as trade marks and copyright.

Manufacturing your invention yourself and subcontracting

This may be the most profitable way of making money from your invention, but it also has the most potential risks (for advice on launching a new business see ***Business Link*** in the ***Sources of information*** at the end of this guide). Rather than making the invention yourself, another approach would be to subcontract this aspect of the work to an existing manufacturer so you can concentrate on other

things like promoting and selling the product. Alternatively, you could enter into a joint venture with an existing company that has the necessary business experience to identify and overcome potential problems, which a newcomer may not be aware of.

Selling your IPRs

You could sell your IPRs outright to another person or organization. Transferring an IPR is known as assignment. However, once you have transferred ownership, the new owner can stop you using your invention unless you negotiated a licence for this use when you made the transfer agreement.

International strategies

Having decided that getting IPR protection for your invention is the right course of action to take, how do you decide where to apply for IPRs? As discussed earlier in this guide, IPRs are territorial, and in those countries where you have no IPR protection, your ideas can be freely exploited by your competitors. Ideally, you should seek IPR protection in all of those countries where you expect to market or manufacture the invention, provided it makes commercial sense to do so. In other words, you should seek to evaluate the cost of IPR protection in a particular market against the anticipated revenue or other benefits that might arise from the market. Even if you only want to license others to manufacture and sell your invention in other countries, you should consider taking out protection in those countries to discourage unlicensed copying or use of your invention. Also, applying for IPR protection abroad can improve the licensing potential of your IPRs by broadening the potential market base.

If you decide to get patent protection in two or more European countries that are members of the European Patent Convention (EPC), then the best course of action is usually to file an application at the European Patent Office (EPO) designating those countries, rather than seeking separate protection from each country. You may decide that the market for your invention goes well beyond Europe. If this is the case then you should consider filing a Patent Cooperation Treaty (PCT) application. A major commercial advantage of using the PCT route to patent protection is that it enables you to defer the high-cost decisions, such as the filing of translations, for as long as possible. Any international strategy will have cost implications since fees and translation costs will often be necessary for each country. As the procedures under the European and international routes can be complicated, you are strongly advised to use the services of a patent agent.

Licensing: The basics

What is a licence?

When a holder of an IPR wishes to permit another person to do something that is within his or her control as the IPR owner, a licence may be agreed. A licence is a contractual agreement under which, while still owning the IPR, the right to use or sell the product, process, or IP is transferred to someone else in return for a royalty payment or other considerations. Licensing can be very useful if you do not have the knowledge or resources to manufacture and market your idea yourself.

What should be covered by the licensing terms and conditions?

The licence document should set out the terms and conditions that apply to using the IPR, including any payment or royalties to be made by the person using the IPR ('the licensee') to you ('the licensor') in return for using your rights. The licence should also show the geographical area (e.g. country), the field of use in which the licence applies (e.g. manufacture, sale, import), and how long the licence will last. Licensing terms can specify the manufacture of the product, the provision of a service using the product or the agreement to use the technology in a single application only. For instance, the licensing terms for a new material might allow only one particular product to be made from the material. Usually, technologies that are incorporated in standards are licensed under standard terms to all licensees, however a strategy might provide free licences to private users or individuals, while charging professionals.

It is essential and in your own interest that your licence agreement covers all aspects as it is a legally binding document. You should consult a patent agent, licensing practitioner or solicitor who specializes in negotiating the terms and conditions of licences. Contact details can be found at the end of this guide.

In the case of patents, once a licence has been agreed, you or the licensee must tell the Patent Office as soon as possible so that the licence can be recorded in the Register of Patents.

Are there different types of licence?

There are several different types of licence, including:

- an exclusive licence – a single licensee has the right to use the IPR;
- a sole licence – a single licensee and the IPR owner have the right to use the IPR;

- a non-exclusive licence – several licensees have the right to use the IPR.

One reason for granting exclusivity is that exploiting the right may require a heavy financial commitment on behalf of the licensee and they will only undertake it if they have the exclusive rights, at least for a significant number of years. The licensee may also require lead-time to develop the product before the invention can be exploited, and again they will only undertake the development costs if they have the exclusive rights. Finally, the licensee might be able to meet all the market demand themselves and it would make little commercial sense to divide it up.

Licensing-in and licensing-out

Licensing-in involves obtaining key products or technologies under license from an IPR owner. Licensing-in is a way to acquire products or technologies without expending the time and resources necessary to develop them independently. In some cases, licensing-in is required in order to gain access to technologies that are proprietary but standardized in products of interest. Licensing-in reduces the time to market and might also be used to legalize infringement.

Licensing-out involves an individual or company licensing its IPR to a licensee in return for royalties and/or other considerations.

'Licence of Right'

You can apply to the Patent Office to have your patent endorsed 'Licence of Right' in the Register of Patents. This means that you cannot refuse to license the invention. After endorsing your patent in this way, any renewal fees are half the normal rate so you can keep costs down while you try to benefit from your patent. You can later cancel the 'Licence of Right' endorsement, but you will need to pay the balance of the renewal fees that you would have paid if you had not asked for the endorsement.

Licensing: Practical use and development

A protection strategy can incorporate licences in many ways. Licensing involves less investment and fewer resources than manufacturing. Much of the risk is transferred to the licensee. However, a proportional measure of the potential reward is also transferred, limiting the licensor's reward. Selling a technology is the least risky approach, but because of the high risk assumed by the purchaser, this approach offers relatively less reward as well.

The main reasons for licensing include the following.

- It may be the easiest way to gain entry to a particular market. The licensee may be well established in a particular market with all the necessary marketing and distribution resources, customer base and reputation needed to exploit the invention.
- Granting a licence may allow you to cross-license in return, and therefore gain access to a right which will enhance your own business.
- Licensing may be chosen if the IPR-holder or standard developer faces capacity constraints.
- Granting a licence may be the simplest and most cost-effective way of resolving an infringement of the rights in question.
- A licence removes the risks that are inherent in manufacture and sale.

It is important to remember that there may be other IPRs owned by someone else that will also need to be licensed before a product can be made or an activity undertaken. The following are examples of such cases.

- A patent may relate to an invention in a new engine for a car, and the patentee could agree licences to make these new engines. However, making the car may require other IPRs to be cleared.
- Making a copy of a film could be licensed by the owners of the film copyright, but it may also be necessary to seek licences in respect of other right holders, such as the scriptwriter, the composer of music used in the film, the producers of sound recording used, and the cast.

Strategic advice: The basics

The significance of a strategy for a company can be considerable and long-lasting. Strategies vary from one organization to another and there is no optimum to be followed. Large enterprises that have significant financial resources often pursue a strategy of developing and maintaining a large quantity of standards and IPRs. In contrast, for most start-up companies, developing and building a comprehensive standards and IPR portfolio can be prohibitively expensive. However, by understanding some of the basic principles of standards and IPR strategies, and with early planning, a start-up company can establish a cost effective strategy and a valuable standards and IPR portfolio. The key for a small company is to focus initially on one or more crucial standards and/or IPRs, and these need to be identified first of all.

What are your company's sources of value?

It might not always be apparent to a business that it has knowledge that can be turned into successful products or services through IPRs or standardization. In order to transform hidden, or possibly underused, intellectual capital into tangible profits, you need to identify those assets. This involves identifying the factors that exist in your company that contribute to the performance of your business. They may be technologies, sources of information, quality procedures, or relationships with your suppliers, customers and partners. Innovative factors may be found by examining the invention, technical aspects of product development, how the organization operates, its fabrication processes, and how the product is marketed. Typical questions to identify the assets might include the following.

- What product or service does the company provide?
- What makes a difference for the consumer?
- What knowledge resources are necessary to be able to supply the product or service?

Commonly held assets such as databases, in-house software, work manuals, promotional videos and product specifications should all be considered. To identify the innovation, it might also be useful to assess which of the capabilities of your business provide competitive advantage – customer/market; product/service; business system/value chain; assets/resources; partners; and/or scale/scope. The intellectual capital audit can be carried out internally or by specialists, and there are a number of Published Documents (PDs) available from the British Standards Institution (BSI) giving advice on different knowledge

management methodologies. Once the intellectual capital has been identified, it should be documented and managed. At this stage you can decide whether it can be standardized or protected by IPRs, and a strategy can be decided.

By being able to understand, identify, manage and develop your company's intangible assets, you will be able to unlock its full potential. This approach can benefit your company, for example, in yielding new areas of business and profit, in raising development finance and in identifying collaborators or new partners, all with the aim of making your company more competitive. Intellectual capital – often in the form of IPRs – is now recognized as being amongst the most important assets of many of the world's largest and most powerful organizations, and it can be the foundation of market dominance and continuing profitability. Failure to fully recognize and exploit intellectual capital can mean that an important source of revenue is lost to your organization.

Initial considerations

Whether standards, IPRs or licensing are used individually or in combination, there are several questions that should be considered in a successful strategy. Some of these considerations are presented in **Figure 11**, and other market viability questions are listed below.

- What is the size of the market for your product?
- How long is that market likely to remain buoyant?
- How quickly will your product become out of date?
- Is it likely to compete successfully with alternative similar products?
- What will it cost to develop, manufacture and market your invention?
- What are the costs of applying for a patent, or other forms of IPR, or developing a standard?
- How much will the IPRs cost to maintain (renewal) and to defend (infringement)?
- Do standards exist that your product/service should satisfy or do you need to develop one? Should any development be done alone or with others?
- How much will it cost and what are the chances of success in creating a new standard?
- Is the value chain, in which your product or service is placed, complete, or does it require additional development from others?
- Can your product sell at a price that will cover your costs and make a reasonable profit?

Sometimes, inventors fail to appreciate that what may be an excellent product is too difficult and expensive to manufacture. Even if it has the potential to be commercially successful, licensing or selling the IPRs outright might be a better option.

Prototypes and testing

If the invention is a physical product, a good-quality working prototype of the invention should be considered to:

- show that the invention really works;

- demonstrate the invention's potential to possible business partners; and
- ensure that it meets any product or industrial standards. If discovered later, these can add considerably to costs if the invention is manufactured by yourself.

Strategic use and development of standards and IPR

Patent and standards information – why and how can it be used?

[Source: Adapted from www.ip-europe.org]

To appreciate the full value of patents and standards as an information source, it is useful to look at their main features.

- Technical detail – since patents and standards provide detailed disclosures of solutions to technical problems in every area of technology from water pumps to complex electronics, it is clear why patents and standards information is so valuable for technology development or transfer. Standards are also a useful source of information, since they disclose management systems, business methods, software and other inventions that cannot be patented.
- Volume of information – in total over 50 million patent documents have been published to date, with about 500,000 more being published every year, and over 700,000 standards, technical regulations and other standards-type documents have been published to date, with 3000 published last year. It is clear that patents and standards form two of the greatest technical resources available in the world today.
- Unique information – in most cases, the information patents and standards contain will not appear anywhere else. It has been estimated that in over 80% of cases, the technical detail in patents is never published in any other form. Failure to access this information can prove costly.
- Early information – most patent offices publish the details of an invention for which a patent is sought at 18 months from the earliest filing date. The patent publication is frequently the first public indication of a new industrial product or process. Similarly, standards and standards-type products are published early in the life of a new product or technology and therefore provide state of the art information. Whereas patents provide information on the front end of emerging technologies, standards tend to follow market acceptance and therefore provide some information as to the success of an idea in following through to market.
- Information available for use – once a patent has expired, either because it has run the full term of years or because the owner has ceased to pay renewal fees, then the information they contain is available for anyone to use. In such cases there is nothing to stop you using the information in

anyway you choose. In other words, a great deal of patent information can be regarded as relating to 'free technology'. In this respect however, care should always be exercised because, although the patent you are interested in has lapsed, there could still be an earlier patent in force that prevents you exploiting the lapsed one for free. Further, if a patent has not been applied for in your country then, even if patents are in force in other countries, you are free to use the information. However, you cannot export any resulting product into countries where the patent is in force.

There are a great many ways in which patents and standards information can be used. It is convenient to divide these uses into three main categories: technical, commercial and legal.

Using technical information

Typically, patents and/or standards contain:

- a statement of the technical problem to be solved;
- a discussion of the known prior art and its defects, possibly with references to other patent or journal disclosures (patents);
- a description of the invention and how it is to be put into practice – usually with drawings, circuit diagrams or chemical examples;
- a statement of claim setting out the monopoly sought (patents).

This rich source of information can be used in a great variety of ways, for example to:

- find solutions to technical problems;
- review any area of technology to show current and past technical trends;
- avoid duplication of work;
- identify and evaluate technology for transfer.

Using commercial information

A search in patents or standards, or involvement in standardization can give rise to a great deal of valuable commercial information and can answer questions such as the following.

- Who are the active companies in any particular area of technology?
- Who are the owners of patented technologies?
- What are the trends in commercially viable technologies?
- What areas of technology are your competitors active in?
- Who are the key inventors in a particular field?

On the commercial front, patent and standards information can be used to:

- locate potential business partners for collaboration;
- locate suppliers of equipment or materials;
- identify products for marketing;
- assess technology-related proposals for financial support;
- locate areas of investment.

Using legal information

Patents and/or standards can also provide a wide range of valuable legal information such as:

- to generate new ideas for products or processes;
- the status of a patent or a patent application;
- the countries where the invention is protected;
- the scope of the protection;
- how to avoid possible infringement problems;
- determine the likelihood of a product or process being patentable;
- oppose the grant of patents;
- to assess the validity of a patent by analysing the related patent documentation;
- to determine whether or not a particular action could infringe an existing patent.

Exploiting your invention

As far as an innovator is concerned, exploitation can be achieved in three basic ways:

- sell the rights;
- manufacture and sell the product; or
- license the rights.

These three ways are defined by a contract that is agreed by the parties involved. Therefore the three basic ways may be varied according to the specific circumstances. For example, the sale of rights may include ongoing payments defined by a percentage of the product sales, or by an annual payment whilst the product is manufactured. Selling the rights outright means that the originator loses all interests in the intellectual property.

What is the cost of using standards and IPRs for information?

The cost of obtaining a standard for use varies depending on the standard and the way it was created. Some standards are available for free ('open' standards) or for a nominal charge, while others may cost hundreds or thousands of pounds. However, the fee for purchasing a standard may be nominal compared to the benefits it confers. Standards can usually be viewed, for instance, in a standards library for free. However, such viewing of a standard does not give permission to carry out the processes contained in a standard; buying a standard with an associated licence gives such a right. Fees may be payable to use any IPR associated with technology contained in a standard. However, there are systems in place to ensure that IPR-protected technology in consensus standards is removed or minimized, and any royalty fees on IPRs in a standard should be under fair and reasonable terms, as discussed later in the guide (see *Tensions between IPR and Standards*). Of course, there may be costs in changing your practices to conform to the standard, although the benefits should outweigh the costs if a favourable cost/benefit analysis has previously been undertaken.

Patent and design specifications and registered trade marks can be viewed at an

IP library or online from free-access databases. Many national patent offices have their own web pages in which they offer free access to their national IPR databases. Also, the European Patent Office has a free internet service called 'Esp@cenet' (<http://ep.espacenet.com/>), which gives access to many international patent documents. In addition to the free access databases, there are private suppliers of patent databases. Obtaining a copy of a patent or other IPR does not give permission to carry out the invention claimed. The cost of carrying out the claimed invention is dependent upon the conditions of any licences that are granted, as well as manufacturing and equipment costs etc. Again, the benefits should outweigh the costs if a favourable cost/benefit analysis has previously been undertaken.

What is the cost of developing IPRs and standards?

For both standards development and IPRs, the main costs to consider in a strategy are professional fees and time/personnel costs. Also to be considered are the opportunity costs of a delayed marketing of the product while standards are being developed. Financial assistance may be available to contribute towards the travel costs involved in participating in standards committees, for fast-tracking the initial development of some standards using consultants, and to support the attendance of consumers at meetings in the UK as well as abroad. The British Standards Institution (BSI) can advise on the availability of such assistance.

The official fees for obtaining national IPRs are relatively inexpensive. For example, the official fees to apply for a registered design are £35, while they are around £200 for grant of a patent or trade mark. Applying for a patent carries no charge at the filing stage. Renewal of these IPRs is necessary each year, or less frequently depending on the IPR, and costs from £50, again depending on the IPR in question. Copyright and unregistered design right are automatic rights and therefore there is no application fee. Although the official application fees for IPRs are inexpensive, if professional agents are used to draft a patent or process the IPR application, the costs are likely to be much higher. Professional fees for drawing up confidentiality agreements to protect know-how, or a licence, should also be considered. International IPR strategies can be considerably more expensive than a national strategy since application fees for each country, and translation costs, must be taken into account. Although awareness of an IPR is usually sufficient to prevent a competitor exploiting your IPR without permission, enforcement can be expensive and if your IPR is infringed, litigation costs can be very high, although insurance can cover such costs.

Time considerations

In any strategy, the potential useful life of the technology or product should be considered. If the technology can be easily replaced and does not need a whole industry and infrastructure to support it, its life expectancy will be relatively short. If, on the other hand, an infrastructure is necessary and several industries must participate in order to fully exploit the technology, both the introductory phase and the overall life expectancy will be longer. A very short lifetime (i.e. less than 2 to 3 years) will probably favour IPRs or pre-standards over traditional consensus standards. However, particularly in fast-moving high technology fields, the timescales and costs for producing patents can diminish their relevance since the technology will change before they come into force. When exploiting fast-moving technologies with short lifetimes, new, faster alternatives to standards should be considered; pre-standards and other alternatives are discussed in [Table 1](#).

Another issue that should be borne in mind is the period that a standard or IPR is effective; if the lifetime of the product is very short, then time is of the essence in obtaining your protection strategy tool. If the lifetime is very long, then more choices become available. The time taken to develop or obtain the protection strategy tool, as well as the period of effectiveness, should be considered. IPRs such as patents and trade marks can be renewed, while standards can undergo periodic reviews of their content, resulting in updated standards that can last indefinitely. **Figure 6** shows the time taken to obtain a standard or IPR, and the potential lifetime.

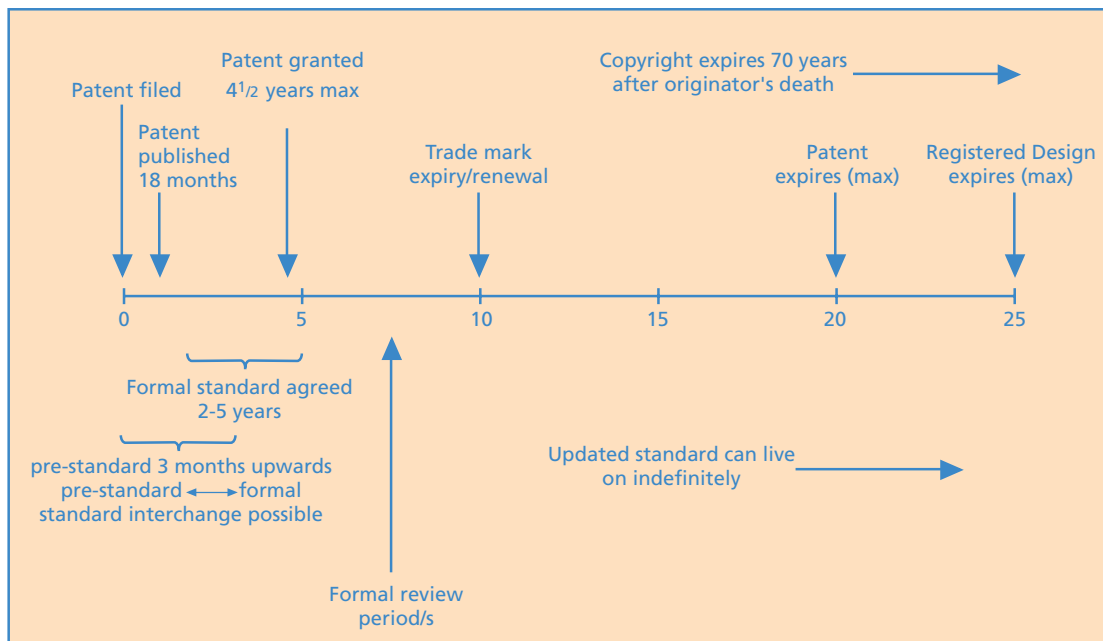


Figure 6. Time taken to obtain a standard or IPR and the potential lifespan

Table 3 summarizes the protection periods of the different types of IPR, and indicates whether renewal of the IPR is required or possible.

Don't patent if you clearly don't need to, however once the knowledge is public (for example via a standard) you cannot patent. It might be safer to file for a patent before commencing standards development. The possible resulting patent will not affect standards development as long as it is declared and is royalty-free, or fair, reasonable and non-discriminatory (FRAND) terms are applied in any licensing. The patent application can always be withdrawn or the granted patent not renewed if you no longer wish to pursue it.

A strategy should take into account the position of a product in its route from conception of the idea, through development and testing, to production and marketing. This is explained in the following section, which explains the different lifecycle stages and strategies for each stage.

Table 3. Protection periods in the UK for different types of IPR

Type of IPR	Protection Period	Renewal required/possible?
Patent	Up to 20 years from application date	Yes, required each year from the fourth anniversary of application up to the maximum protection period
Copyright	The duration of the author's life plus seventy years from the start of the year following their death	Automatic right. No protection beyond stated protection period
Trade Mark	Indefinite, as long as it is used in the course of trade	Yes, required every ten years
Registered design	Maximum of 25 years	Yes, required each year from the fifth anniversary of application up to the maximum protection period
Unregistered design right	10 years after first marketing, subject to an overall limit of 15 years from creation	Automatic right. No protection beyond stated protection period
Know-how	Indefinite, as long as secret	Automatic right

Case Study 3 – Marine safety helmets

Innovative Cornish company Gecko Head Gear specializes in helmets for niche sport markets and marine safety organizations. In 1995 the Royal National Lifeboat Institution (RNLI) and other like minded institutions were looking to replace the motorcycle helmets being worn by their crews at that time. In response to this, and over a number of years, Gecko Head Gear researched and developed a range of safety helmets, culminating in the present MK10 Gecko Marine Safety helmet. Patent applications have been filed internationally for the MK10's inflatable liner and a number of registered designs have been granted for the helmet's design. To demonstrate the safety and quality of the helmets, the first Marine Safety Helmet standard in Europe was developed – the BSI-approved Publicly Available Specification PAS 0028:2002 – creating a benchmark for others to follow. The helmet also bears a CE marking, which demonstrates compliance with relevant European Directives and Regulations. New product lines are continually being developed, resulting in Full Face, Cutaway and Videocomm designs to date, as well as incorporating the inflatable liner into a surfer's helmet. With each new product, the relevant intellectual property rights have been obtained. The strategy has been very successful and customers now include the UK Ministry of Defence and the Australian Navy.

The Innovation Lifecycle

Any innovative product or service has many different stages during its route from the initial idea, through development, testing and market release, and finally to maturity and decline of the market. As new products are developed based upon old, the innovative features feed back into the lifecycle (see [Figure 7](#)). At each of the stages of the Innovation Lifecycle, it is important to consider how IPR and standards might be used. This is because certain decisions, such as whether to make the invention public or whether to follow existing standards, can impact upon the development of the invention and the future strategy.

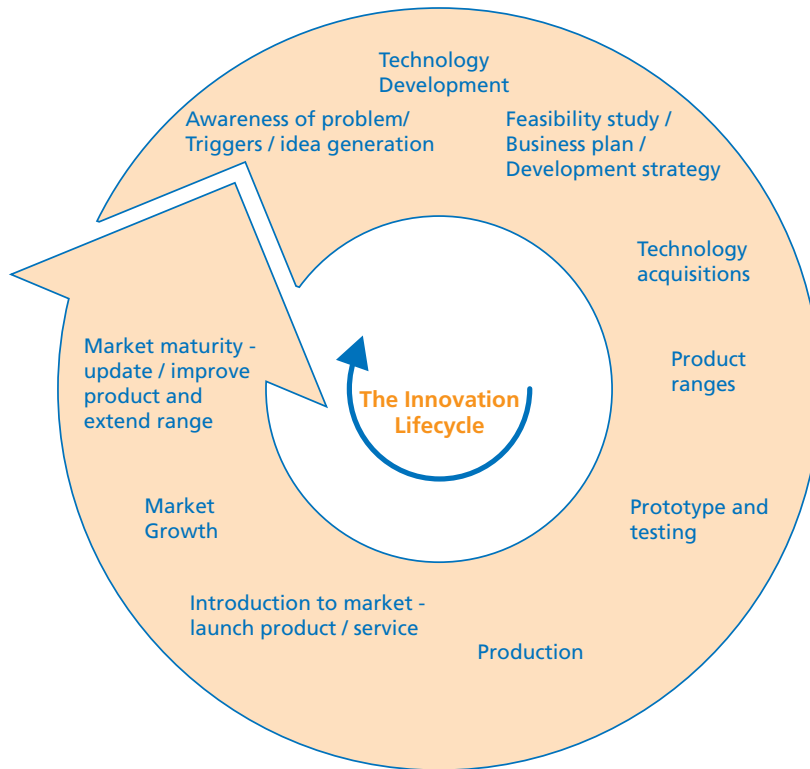


Figure 7. The Innovation Lifecycle

The different stages in the Innovation Lifecycle – idea generation; technology development; product development (including feasibility studies, technology acquisition and development, development of product ranges, prototypes and testing, and production); introduction to market; market growth; market maturity; and market decline – are explained later in this section (see **Innovation Lifecycle stages**). Figure 7 illustrates the general forward momentum of innovation, however, some of the activities may well occur concurrently, particularly in large companies with greater resources.

Certain stages within the Innovation Lifecycle can be shown in an alternative form as the product lifecycle (see Figure 8), which shows how sales or revenue might change over time. ‘Product’ refers to all innovative solutions, including services.

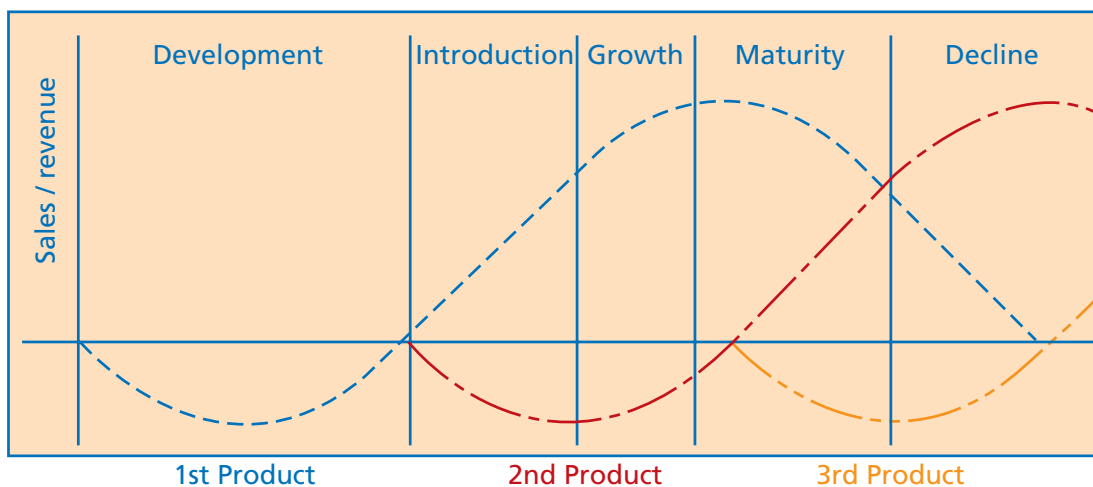


Figure 8. Three product lifecycles showing concurrent product development

It should be noted that there are both technology and product lifecycles, with the technology lifecycle leading and the product lifecycle following. This is shown in [Figure 9](#).

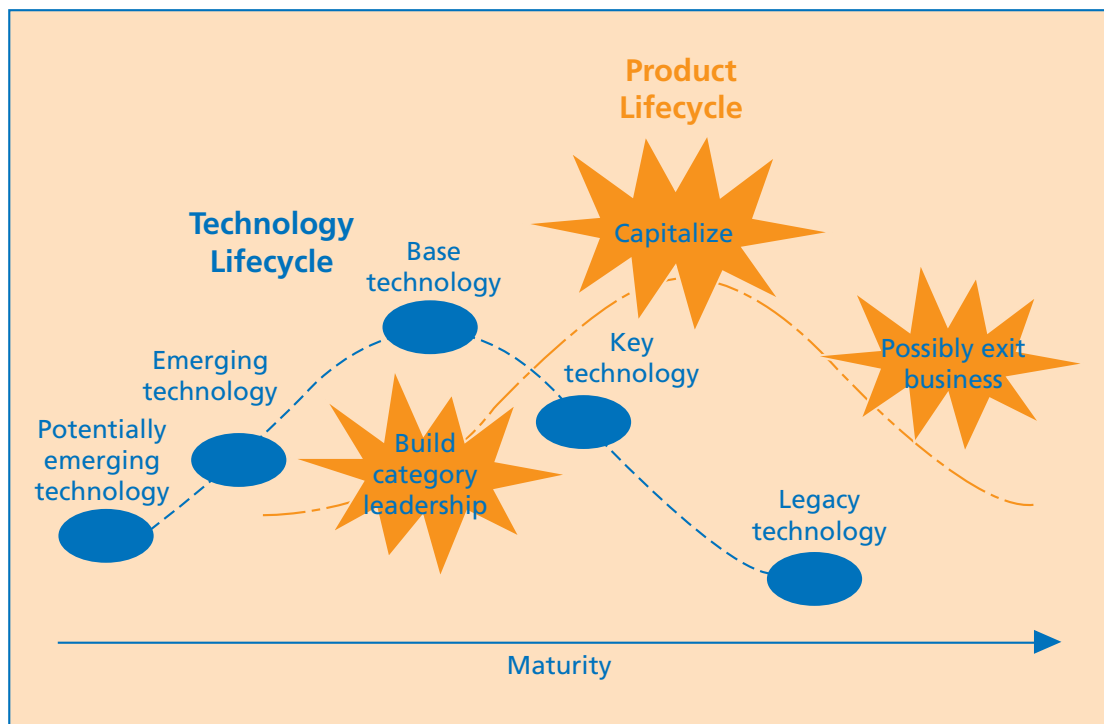


Figure 9. Technology and product lifecycles and possible business strategies

The technology lifecycle begins with the conception of a new technology, and develops as the technology progresses. When the technology has progressed to a certain point, the product lifecycle begins and relates to products utilizing the technology, for instance a device made from a new material. The strategies used during the product lifecycle, as discussed below (see ***What should you consider when using the product lifecycle?*** later in this section), can also be used at equivalent stages in the technology lifecycle.

Innovation Lifecycle stages – standards and IPR strategies

Your standards and IPRs represent an investment from which you can expect a return. Therefore, transforming an invention into a marketable product or process, so that it begins to generate revenue and profits, is a crucial stage in the innovation process. If you adopt a systematic approach for the commercialization of your innovations, it should ensure good returns on investment in standards and IPRs. The following guidance is likely to be most effective when used across every stage of the lifecycle for a particular product. However, much of the advice can be applied for existing products that are already beyond the initial lifecycle stages. An exception to this is an invention that has been made public and therefore cannot be patented. If you already have IPRs or standards for a product, some of the advice may still apply; different types of IPRs might be developed or the standard could be enhanced and updated. Importantly, the exploitation strategies discussed in relation to different stages of the Innovation Lifecycle are not limited to these stages. Indeed, applying selected strategies at any Innovation Lifecycle stage is likely to provide benefit.

Innovation Lifecycle stages

Idea generation

In this stage, the first awareness of the problem to be solved, or the gap in the market, arises. Following this, there is a first attempt at defining the problem, and background research is carried out. Standards, such as those used in regulations and existing product standards, and published IPR, such as patent specifications, can be used to learn about existing products and requirements. This can help to focus product development. Legislation and regulations that should be complied with, and standards that should be conformed to, are determined.

Technology development

Once the product requirements have been identified and background research carried out, the technology required to solve the problem, or fill the gap in the market can be decided, and this process characterizes the 'technology development' stage. Standards and published IPR, such as patent specifications, can be used to learn about these technologies.

Product development

This stage includes feasibility studies, technology acquisition and development, development of product ranges, prototypes and testing, and production, and is where the idea of the product takes shape. Technology that has been identified is acquired, possibly by licensing-in, and is developed according to need. Further tasks include forecasting how the initial product or solution concept might develop into a range of products, and considering how these might be integrated into the other parts of the business. Prototypes are made and testing of these prototypes takes place. Standards development and IPR strategies should be considered in this very early pre-competitive stage of the technology lifecycle (i.e. before competing products are released). There are advantages in collaborating before products and technologies have been firmly set. In this pre-competitive environment, common guidelines can be developed, possibly as pre-stages of future standards, in order to provide the confidence within the supply chain for investment in new technologies. Considering standardization issues early focuses product development and can avoid costly investment in the 'wrong' standard. This stage is also particularly important when considering the strategy since the invention is secret, and therefore decisions on whether to use know-how and patents can still be made. Moreover, the strategy can potentially be used across the full lifecycle of the product, thereby maximizing effectiveness and financial returns. There may be key 'make or buy' decisions that need to be taken into account at this stage and these all have associated IPR implications. The IPR strategy itself must also consider, in the minimum, the ability of the developed business or service to operate freely of competitive IPR and, in the maximum, should cover the acquisition, cross-licensing or licensing-in of IPRs to try to establish control of the intellectual property landscape around the business. The costs and benefits, particularly in management time, of participating in standards bodies and in producing IPRs must also be considered in budgets and resources.

Introduction to market

In this stage, the product or service is launched into the market. Methods to generate revenue by sale, partnerships, joint ventures or licensing of the

products, services and/or the IPR commence. A strong brand identity can be established using trade marks in a name, logo or slogan, and design originality can be protected by registration. Design right might also be exploited to protect three-dimensional product appearance. Sales growth is slow while customers get used to the new ideas it incorporates, and profits are low due to development investments. Furthermore, limited numbers of product are available in few channels of distribution. The introductory stage continues until sales begin to accelerate rapidly. This stage will be dominated by the need to establish the product in the market by building buyer and distributor awareness of the product and its benefits. Diffusion of the product can be aided by publishing IPRs and by entering the standardization process. Once an initial awareness has been established, trade and consumer resistance towards accepting new products can be overcome using quality and function standards, which can also show compatibility with existing products on the market.

Market growth

In this stage there may be a period of rapid market acceptance and sales growth, leading to an increase in profits. The relative lack of competition may make this the most profitable stage in the lifecycle. In this stage there should be the beginning of the search for other target market segments into which the product, once modified or further differentiated, can be sold. Standards development and strategic alliances can be used to develop compatible products, and to lower research and development costs. Standards may also be used to obtain royalties from IPR, although in the context of consensus standards this is unlikely to be possible due to the requirement to remove embodied IPRs, or to commit to fair and reasonable licensing terms. Since at this stage there are likely to be competitors in the market, and several technical solutions to the problem, the emphasis should be placed upon branding, for instance using trade marks. Competitor's public IPRs may also be used to gauge the market and to provide development ideas.

Market maturity

This stage is characterized by a marked slowdown in sales growth because the product or technology has achieved acceptance by most potential buyers. Price competition, over-capacity and the increase in research and development to improve mature products leads to a decrease in profits. Eventually profits level off because of the increased marketing spend needed to defend against competitors and new innovations. This stage usually lasts longer than the previous stages, when product adoption begins to approach its full potential – most marketing management deals with mature products. Therefore, along with the development stage, when the shape of the strategy is defined, it is imperative to exploit this stage to its full potential. Although many products in this stage appear to remain unchanged for long periods, most successful ones are actually evolving to meet changing consumer needs. The development of new standards can focus this incremental development and reduce the number of possible solutions, resulting in economies of scale. Customer loyalty to the brand must be maintained. Strategies include modifying the market (new segments) and differentiating the product (quality, style, features). Licensing-out of IPRs may be used to solve patent disputes and licensing-in may be used to develop own products. Process innovations can help a company compete with greater operational efficiency.

Market decline

In this stage sales fall off and profits drop due to replacement technology offering enhanced performance, changed consumer tastes and legislation. Suitable strategies in this stage include achieving greater efficiency by using standardized elements, IPR protection of developments and accessories, and highlighting product performance using standards. Registered design may be employed to protect aesthetic product improvements.

Figure 10 summarizes the role of standards and IPRs at different stages of the lifecycle, and shows possible strategies in these stages.

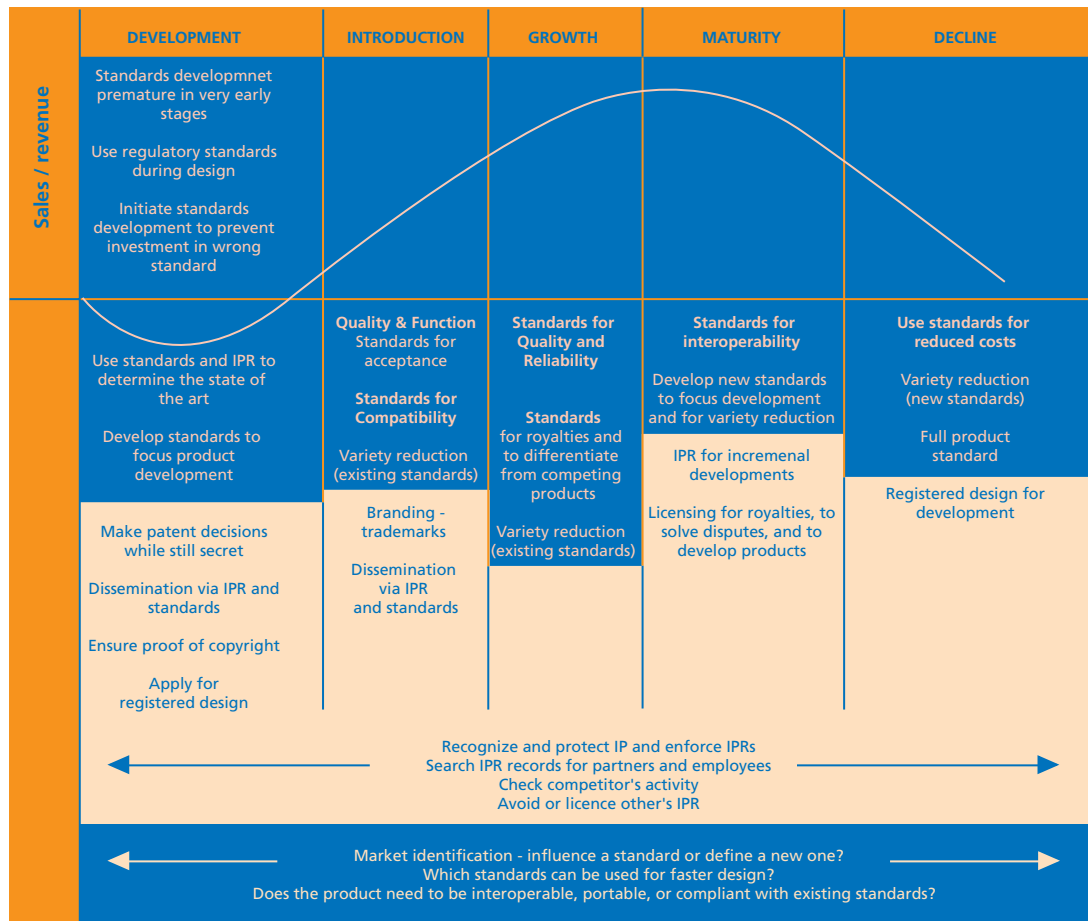


Figure 10. Standards and IPR strategies and their position in the product lifecycle

What should you consider when using the product lifecycle?

The slope of the product lifecycle curve varies from innovation to innovation: some new ideas diffuse rapidly and the curve is steep. Other innovations have a slower rate of adoption and the slope is less steep. The shape of the curve depends on variables including:

- the emergence, growth or disappearance of markets;
- technological developments which may lengthen or shorten lifecycle stages, for instance by development of products or rendering them obsolete;
- changes in customer preference;

- the effect of manufacturing or distribution cost changes on the price to the consumer, and changes in the price of competing or substitute products;
- marketing, for example increased advertising spend.

Furthermore, not all products go through each stage; some go from introduction to decline. A classic problem with companies at the market growth stage of their product development is that they are driven into bankruptcy by the cash needs of supplying a growing or exploding market. Using the lifecycle curve to develop a strategy can be difficult because strategy is both a cause and effect of the product lifecycle. However, later lifecycle stages are most affected by this feedback. It may be difficult to identify which stage of the lifecycle the product is in, and pinpointing when it moves into the next stage. Forecasting the sales level at each stage, the length at each stage and the shape of the curve can also be problematic. In general, the product lifecycle is useful for raising awareness of the different life stages of the product, and is a useful aid for thinking about market decisions and providing a framework for planning. However, it is not a strict pathway and in all cases illustrates only successful inventions.

As well as monitoring the sales of a product and placing the product in a region of the curve, it is important for the protection strategy to try to foresee the profile of the proposed product's lifecycle, including factors such as length of lifecycle and demand fluctuations. The plan should be based on the best understanding of the product and its market at the time. Only limited information may be available in the early stages, so the plan should be progressively developed and reviewed as the project matures. It may be appropriate to apply different standards and IPRs to different aspects of the product, and these choices should be regularly reviewed to ensure they are still appropriate. It is particularly important to develop new products and to overlap product lifecycles for sustainable growth, as illustrated in **Figure 8**. Ideally, a business should have a product mix which has a varied age structure, so that it has a range of products from 'young' through to 'mature', and manages 'elderly' products so that their obsolescence does not unduly damage the future commercial aspects of the enterprise.

Are there any business considerations?

Before a protection strategy can be decided, the capabilities of the business and the strength of the technology must be assessed. The position of the technology or the product in its lifecycle should also be assessed by bearing in mind its likely lifespan and the current demand for the product. Once the lifecycle stage of a product has been determined, innovation strategies can be formulated. Innovation strategies at specific stages of the product lifecycle must be modified according to the market requirements.

Examples of the questions that should be considered when developing a strategy for a new product or service include the following.

- Is the invention secret? If so, is it suitable for IPRs?
If yes, what types of IPRs?
- What standards should the invention conform to?
- Is the invention suitable for basing a standard upon?
- Is it portable?

- Does it require compatibility?
- Can you manufacture the invention yourself? If not, consider licensing-out.
- How can the existing market be restructured or a new one created?
- Can standard parts be used to provide supplier choice and drive down costs?
- Are standards the best means of meeting European CE marking regulations?
- How can new or existing standards be employed to reduce the risk of investment in new technologies or product lines?

These are only a sample of questions concerning some of the many factors that should be considered.

Figure 11 summarizes some of the key questions that should be asked when deciding upon a strategy involving standards, IPRs and licensing. The list is not exhaustive and many more issues are discussed within this guide.

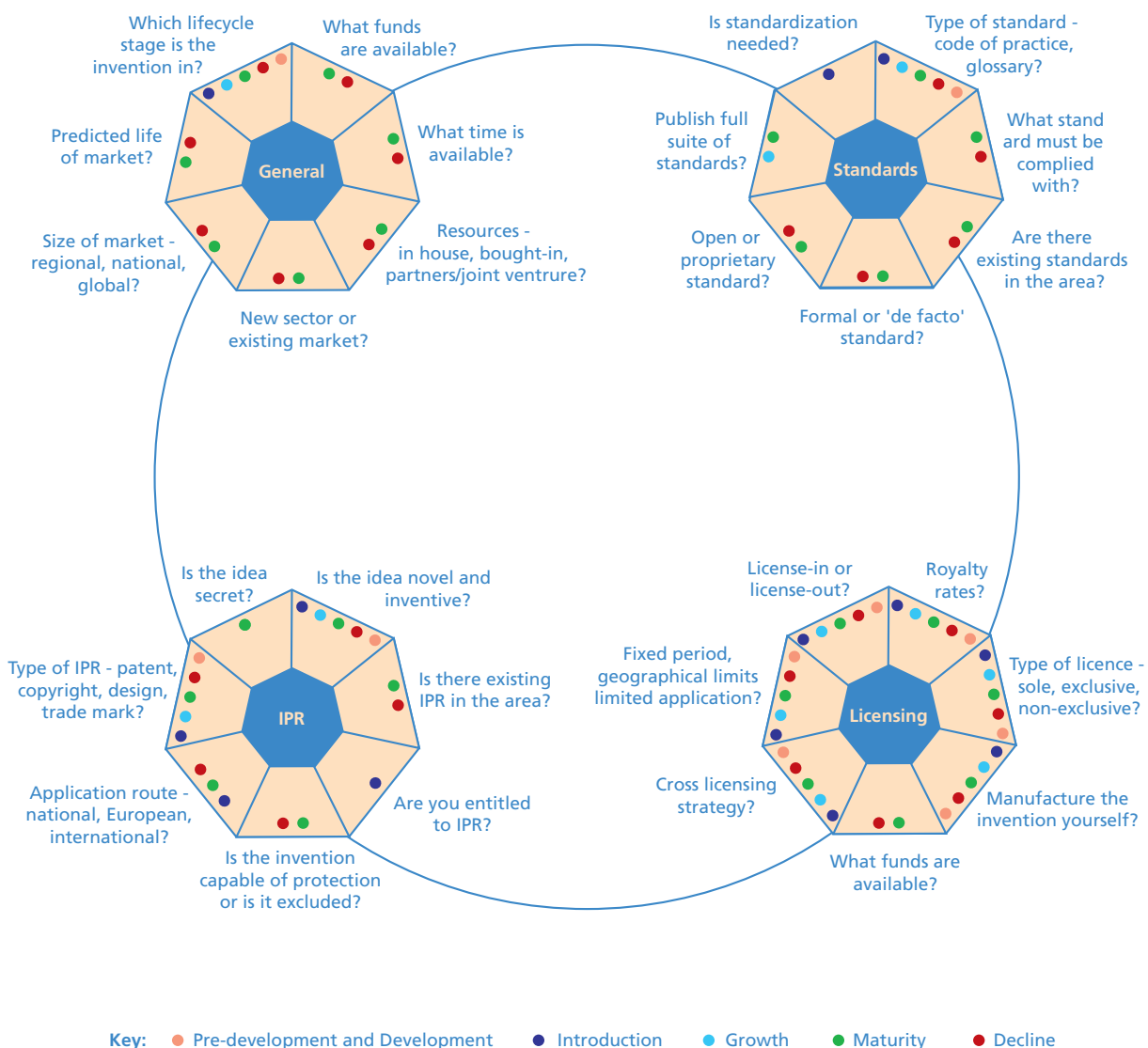


Figure 11. Key questions when considering a strategy

Standards strategies

The main characteristic of standards is that the larger the network of users adopting a standard, the more valuable the standard usually becomes. The problem in devising a strategy is that because of these network effects, standards can follow different rules to conventional products and this can sometimes lead to seemingly unusual strategy recommendations. For example, it is often thought that for a new product the company should get it to market early, differentiate the product, protect it from imitation, and charge high prices. Yet with standards, many successful companies have often done the opposite of this. A business should not always protect its technology from imitation, or even insist on high licensing fees. The main aim in this particular strategy is to recruit supporters, so the innovator may hold back the product launch until all the obvious flaws are ironed out, encouraging other manufacturers to adopt the same standard design, and lowering prices to maximize early sales. This may even be at the cost of bringing in competitors to the market. This may not only increase the standard's chances of being adopted, but may also increase profits via high volumes. For example, such a strategy was used by JVC when it launched the VHS® video format.

Case Study 4 – VHS® video cassette recorder

The introduction of the video cassette recorder (VCR) provides an excellent example of how product compatibility standards may be used to ensure the success of a new product. Despite Sony's early lead in the market with a technically superior product, and the advantage of Sony's size and reputation, the Sony Betamax® was ultimately driven out of the market by JVC's VHS® system. The key factor in JVC's success was its standards strategy. JVC used what were effectively open standards with low licensing fees to enlist the support of other manufacturers. Coupled with this the product was of low cost to encourage the fast uptake of the technology. In contrast, Sony believed it could impose its proprietary standard on the industry provided it was first on the market, and later that it could overcome VHS® by product competition. Betamax® had a high licensing fee and a high introductory market price. JVC earned profits via its share of the huge market rather than high margins, and retained its profitability by holding onto its market share by building complementary assets in manufacturing and marketing early on. It maintained its market share by leading further innovation within the standard.

[Source: 'Standards Strategy and Policy' by Peter Grindley. Oxford University Press. Oxford. 1995.]

When should standards be used and developed?

There is a need to plan when and how it is appropriate to develop standards, particularly in a rapidly developing field of technology. On the one hand, the flow of new ideas may be hindered if standards fix designs and methods too early. Furthermore, developing standards too early can lead to inferior results. On the other hand, if standardization does not start soon enough, a large number of independent solutions may be wasteful of manufacturing resources and confusing to the user. Standardization then becomes more difficult, if not impossible. Standardizing too late can lead to a fragmented market in which it is

unlikely that any innovation will be able to gain the market share necessary to survive. Where a product or technology is already on the market, standardization can involve standardizing current practice – that is, drawing up a specification based on existing products. It can also involve standardizing future technology in its pre-introduction phase. Both methods have been used successfully.

Where possible, standards should be used in the pre-competitive stage of technology and product lifecycles, using standard measurement techniques and terminology.

When technologies and their associated products have short lifecycles, volumes must be driven up rapidly whilst costs must be driven down rapidly, and this is where standards are of value. Market maturity occurs when product adoption begins to approach its full potential. As volume growth slows, competitive price pressures may counter cost savings associated with growth. A couple of the basic questions that should be considered when selecting solutions involving standards are as follows.

- What are the end uses for my products and services, and how can they be reached as quickly and as cheaply as possible?
- Will participation in existing standards, or the creation of new ones, accelerate and cheapen this development?

Figure 12 is a flowchart illustrating one possible exploitation route. The flowchart does not show all available routes, however, it is useful to illustrate the different processes that should be considered when deciding a strategy. Similar flowcharts might be devised based upon different key questions such as cost, time available and the type of standard.

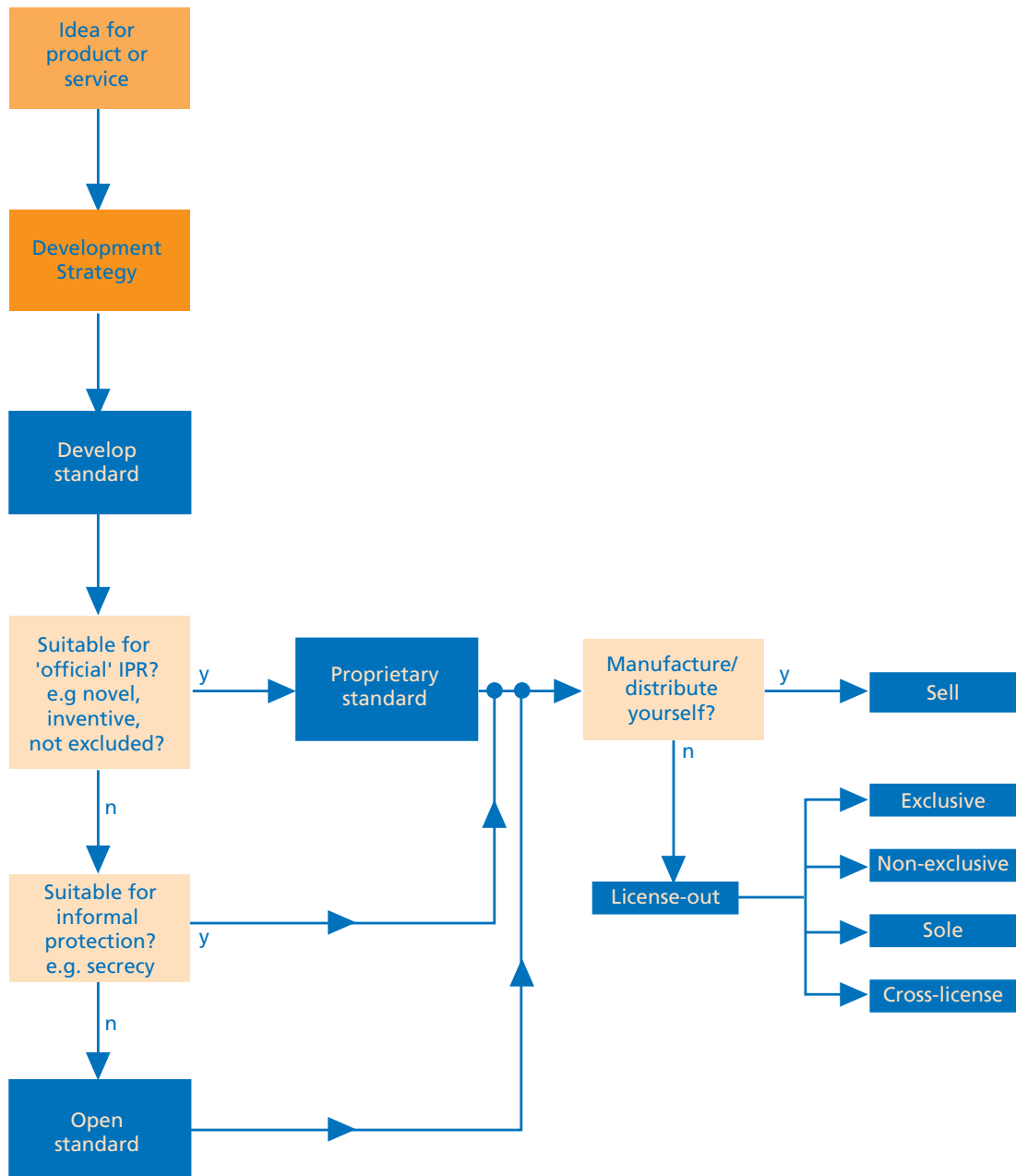


Figure 12. Flowchart of possible exploitation strategies

Table 4a and Table 4b show different types of standards and IPRs, and the strategic objectives for using them at different Innovation Lifecycle stages.

For example, during the Development stage, risk reduction is an important strategic factor. Risk can be reduced by using technology that is known to meet required standards. In this way, standards can be used as an information source to determine suitable technologies. In another example, at the maturity stage operational excellence is a dominant strategy and optimization of the product can be achieved by reducing component costs using standards. Decisions such as whether to use your own design or a competitor's, whether to protect or allow open access, and whether to subsidize production of complementary goods and early sales rather than invest in product development, are examples of standards strategies that can only be decided once all relevant business factors have been considered.

Table 4a. Strategic objectives for developing types of standards during the Innovation Lifecycle

		Standards				
Innovation Lifecycle stage	Strategic objectives for developing standards and typical standards questions	Type of Standard	Compatibility/ interface	Minimum Quality/Safety	Information/ measurement	Variety reduction
Idea Generation	Creativity, idea generation 'How can existing standards be used to research the idea?'	Pre-standard		✓	✓	
		Specification				
		Methods of test, measurement, evaluation		✓	✓	
		Glossary/terminology/vocabulary		✓	✓	
		Guidance (e.g. COP, guide, handbook)				
Technology Development	Technology identification and mapping; feasibility 'How can existing standards be used to research the technology?'	Pre-standard				
		Specification	✓	✓	✓	
		Methods of test, measurement, evaluation	✓	✓	✓	
		Glossary/terminology/vocabulary	✓	✓	✓	
		Guidance (e.g. COP, guide, handbook)	✓	✓	✓	
Development (technology acquisition/ product ranges/ prototypes/production)	Risk reduction; modularization; building block systems; ensure compatibility; ensure product meets regulatory requirements; ensure market need is met 'What technology meets the standard?'	Pre-standard	✓	✓	✓	
		Specification	✓	✓	✓	
		Methods of test, measurement, evaluation	✓	✓	✓	
		Glossary/terminology/vocabulary	✓	✓	✓	
		Guidance (e.g. COP, guide, handbook)				
Introduction To Market	Product leadership; demonstrate compliance (e.g. CE Mark/Kitemark); avoid premature product awareness/exposure; initiate growth 'What standards should the process follow?'	Pre-standard	✓	✓	✓	
		Specification	✓	✓	✓	✓
		Methods of test, measurement, evaluation	✓	✓	✓	✓
		Glossary/terminology/vocabulary	✓	✓	✓	
		Guidance (e.g. COP, guide, handbook)	✓	✓	✓	✓
Market Growth	Product leadership; focus efforts to achieve cohesion and market growth; operational excellence; promotion of network of supporting products and services; reduce risk perceived in mass market 'What tests/marks are required for the market?'	Pre-standard			✓	
		Specification	✓	✓	✓	✓
		Methods of test, measurement, evaluation	✓	✓	✓	✓
		Glossary/terminology/vocabulary	✓		✓	
		Guidance (e.g. COP, guide, handbook)	✓	✓	✓	✓
Market Maturity	Economies of scale; operational excellence; provide focus for incremental product development 'Can standards reduce component costs?'	Pre-standard				
		Specification	✓	✓	✓	✓
		Methods of test, measurement, evaluation	✓	✓		✓
		Glossary/terminology/vocabulary	✓			
		Guidance (e.g. COP, guide, handbook)	✓	✓	✓	✓
Market Decline	Economies of scale; operational excellence; full disclosure 'Can standards reduce component costs?'	Pre-standard				
		Specification	✓	✓	✓	✓
		Methods of test, measurement, evaluation	✓	✓	✓	
		Glossary/terminology/vocabulary			✓	
		Guidance (e.g. COP, guide, handbook)	✓	✓	✓	✓

Table 4b. Strategic objectives for obtaining different IPRs during the Innovation Lifecycle

Innovation Lifecycle stage	IPR	
	Type of IPR	Strategic objectives and roles of IPR use/development
Idea Generation	Patent/Registered Design Know-how	Research problem/solutions - incorporate or design around Secrecy
Technology Development	Patent/Registered Design Know-how	Research technologies Secrecy
Development (technology acquisition/ product ranges/ prototypes/production)	Patent/Registered Design Copyright/ Design Right Know-how Trade mark	Product protection; research problem/solutions/partners/market; license-in and cross-license to optimize development and ensure freedom to operate Product protection; licensing-in for info; cross-licensing Secrecy; lead time advantage; licensing-out royalties; cross-licensing Brand protection; licensing-in royalties
Introduction To Market	Patent/Registered Design Copyright/ Design Right Know-how Trade mark	Product protection; licensing-out royalties; cross-licensing; product awareness via publication Protection of product and instruction manuals/promotional material; licensing-out royalties; cross-licensing Secrecy; lead time advantage; licensing-out royalties; cross-licensing Brand protection & awareness; licensing-in royalties
Market Growth	Patent/Registered Design Copyright/ Design Right Know-how Trade mark	Product protection, including incremental developments; licensing-out royalties; cross-licensing Protection of product; licensing-out royalties; cross-licensing Secrecy; licensing-out royalties; cross-licensing; lead time advantage for incremental developments Brand protection & awareness, including product developments; licensing-in royalties
Market Maturity	Patent/Registered Design Copyright/ Design Right Know-how Trade mark	Product protection, including incremental developments; research new products; licensing-out royalties; cross-licensing Product protection, including incremental developments; licensing-out royalties; cross-licensing Secrecy; licensing-out royalties; cross-licensing; lead time advantage for incremental developments Brand protection & awareness, including product developments; licensing-in royalties
Market Decline	Patent/Registered Design Copyright/ Design Right Know-how Trade mark	Product protection, including incremental developments; research new products; licensing-out royalties; cross-licensing Product protection, including incremental developments; licensing-out royalties; cross-licensing Secrecy; licensing-out royalties; cross-licensing; lead time advantage for incremental developments Brand protection & awareness, including product developments; licensing-in royalties

Proprietary or open standards strategies?

Standards and IPRs can be used alongside each other as separate strands in a strategy. However, a strategy where standards and IPRs are developed together, with the subsequent use of licensing of the IPRs in the standard, could be more profitable. It is the proprietary nature of some standards, whether formal or *de facto*, that enables the use of licensing to generate royalties when the standards are used. However, restrictive enforcement of IPRs can lead to difficulty in translating a strong patent position into a good market position, due to potential users avoiding the expensive technology. Alternatively, open *de facto* standards can be used, in which any IPRs in the standard are designated 'License of Right', and are royalty-free and available for use by anyone.

Open standards can potentially increase the number of companies that use a company's technology, ensuring a wide distribution and increasing the returns potential via a share of a larger market. Open standards may also provide non-royalty benefits through marginalizing competing technologies by building momentum behind the company's technology, and by sending a positive signal to the suppliers of complementary products.

Not all IPRs must be licensed at once: it may be necessary to make a distinction between 'specification IPRs' (proprietary information that describes the functional details of a new technology) and 'implementation IPRs' (proprietary information necessary to apply the technology in an actual product). A strategy might include licensing the specification IPRs, but being more careful with implementation IPRs. In this way the interface for a technology can be disseminated while restricting the technology when applied to particular item.

Figure 13 illustrates some typical protection strategies used by different-sized companies in a variety of markets. The strategies could be suitable for the ventures stated, although they will be dependent on a number of additional factors, and therefore are not necessarily the 'correct' route for all similar ventures. With regard to **Figure 13**, small and medium-sized enterprises (SMEs) that have a product which is differentiated from similar market offerings by the addition of an innovative feature might seek quick financial returns from their product rather than attempting to shape the entire market. An example product might be a flashing cover for a mobile phone; the flashing differentiates the cover from other covers on the market, but it does not shape the market like the mobile phone it is intended for. The SME is following a market whose lead was provided by the phone manufacturer. To make rapid financial returns from the product, the SME might opt for a proprietary standard, perhaps a pre-standard, such as a Publicly Available Specification (PAS). The IPR in the product could then be licensed-out. The SME might also need to license-in from the phone manufacturer to be able to exploit the phone manufacturer's initial design. The cost of this strategy is likely to be relatively low and should be followed if the cost/benefit analysis proves favourable. In terms of the standards strategy, only a medium risk is involved since the SME is not investing large amounts of money to shape the market, but small amounts to capture a share of the sub-market.

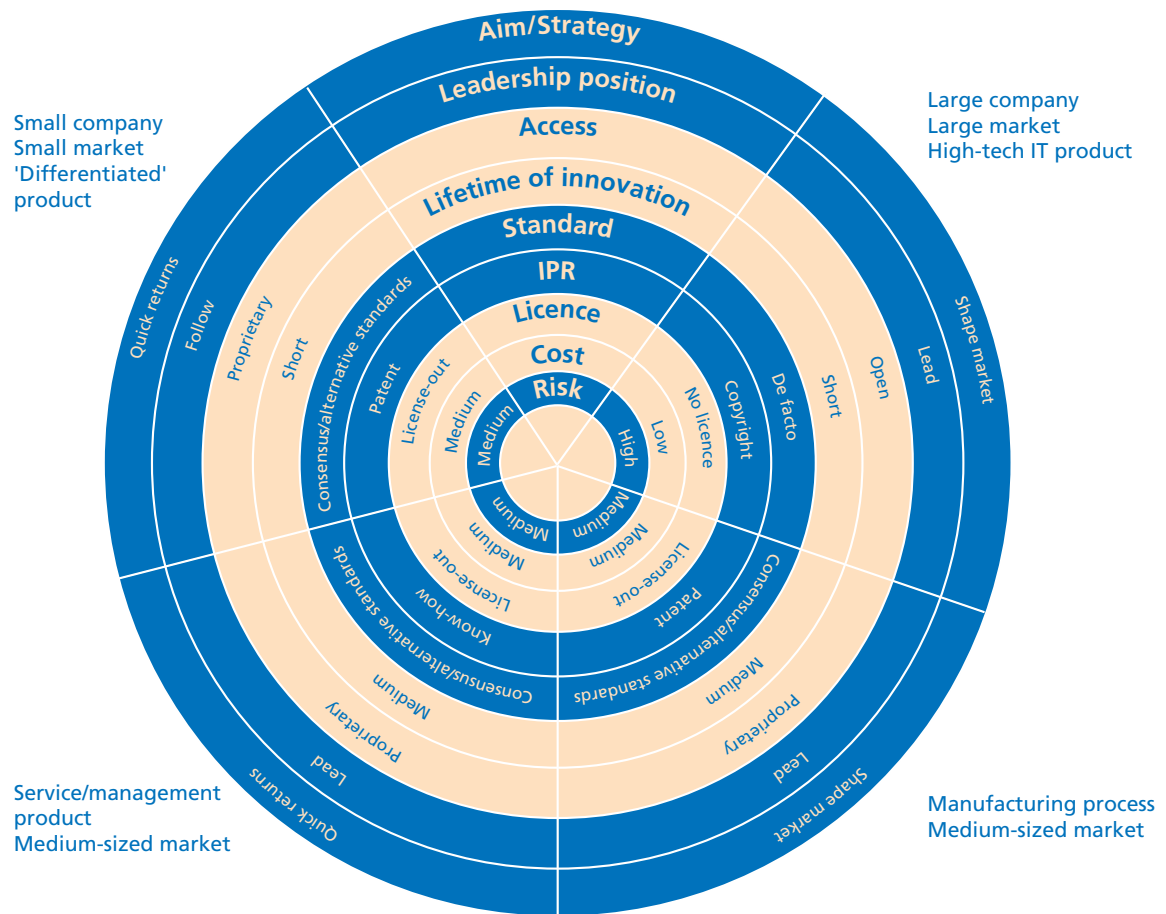


Figure 13. Typical strategies used by different sized companies in a variety of markets

Alternative protection strategies

Tailoring patent protection

[Source: Adapted from Watts JJS and Baigent DR 'Intellectual property, standards and completion law: navigating a minefield'. IEEE International Engineering Management Conference Proceedings. 2002 © 2002 IEEE]

A company holding an IPR that it is not keen to licence widely might consider avoiding participation in standards-setting procedures. An obvious disadvantage in not taking part in formal standards-setting is that a company no longer has any control over the direction of standards development. However, as much of the work of the standards bodies is published in early draft form it is often possible to stay closely in touch with these developments. This enables research and development to be carried out in anticipation of the standard being implemented. Furthermore, claims in patent applications can generally be amended before the patent is granted (and in some cases afterwards, as long as material is not added to the patent application as filed). It can be possible to tailor the protection sought around the standards being developed. This is legitimate providing the patent disclosure supports the patent claims in their amended form. It is, of course, critical to ensure that the patent tracks the standard. It is easy to include a limitation in a patent claim, which is subsequently removed from the standard, removing the relationship between the two.

However, a risk with this strategy is that it could cause the standard's development to be discontinued or the standard to be withdrawn. Clearly it is vital to ensure that the patent agent with responsibility for the relevant patent applications is kept informed of every development in the standard-setting process.

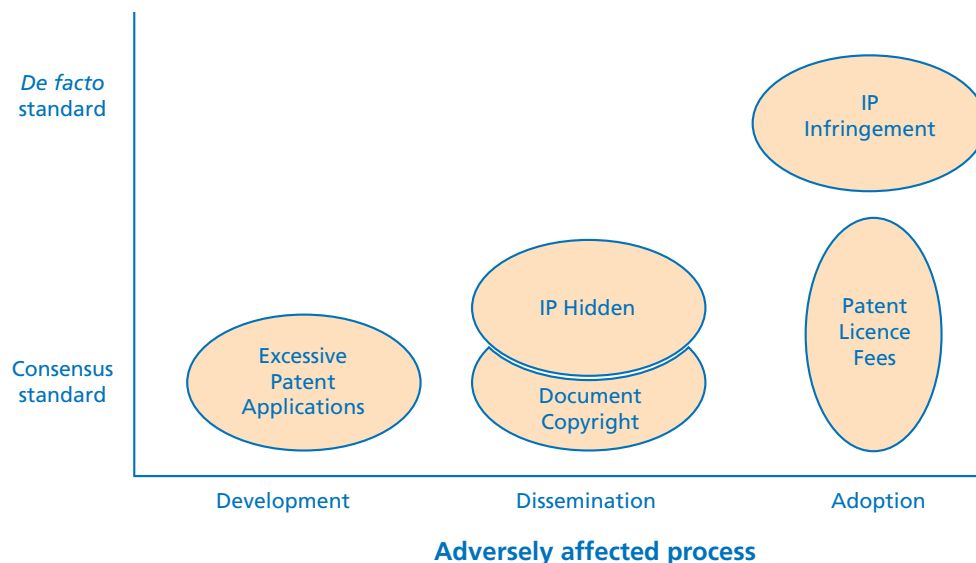
Broad patent filing

Rather than entering formal standardization, broad patent filing can be used to create a virtual proprietary specification. However, each of the patent applications will need to pass the usual patentability tests of novelty and inventive step, and may meet objections from the Patent Office if the patent claims are broad and speculative. Moreover, applying for, renewing, and enforcing a large number of patents could prove expensive. If the patents of one business effectively monopolize a large area of the market, competitors may invest much time and effort in trying to prove that the patents are invalid and should be revoked. Competitors could also invest heavily in alternative standards to bypass the 'blocking' patents. The risk associated with attempting to dominate the market is that the patents and IPR for the technology or product could be made obsolete. This risk must be borne in mind if broad patent filing is used to create a virtual proprietary specification.

Tensions between IPR and standards

The potential for conflict between IPRs and standardization arises when the implementation of a standard necessitates the application of technology protected by IPRs ('proprietary' technology). IPRs, especially patents, can be used to block standards, with considerable negative impacts. The limited claims of trade marks lead to a restricted impact on standardization processes and although copyright can potentially interfere with the standardization process, especially in the software sector, patents are the prime concern. The aggressive assertion of IPRs in standards can be counter-productive, with the fees impacting widespread adoption of the standard. Such assertion of rights could also break competition laws, and the courts could mandate access to a proprietary standard if it was necessary for competing in a market but could not be reasonably duplicated by a competitor. However, such actions under competition law are presently uncertain. Potential problems in competition law are also likely to arise if anti-competitive or restrictive agreements are entered into between companies, or if the dominant position of a company is abused. One possible consequence is the imposition of compulsory licensing arrangements under IP law.

Figure 14 illustrates how IPRs impact the development, dissemination and adoption of standards.



[Source: Adapted from 'Intellectual Property Issues in (IT) Standardization'. A presentation by Michael B. Spring. University of Pittsburg. 2002]

Figure 14. IP Issues in Standardization

For instance, excessive patent applications can effectively create a 'patent thicket', around which it is very difficult to develop a consensus standard. Hidden IPRs and the assertion of document copyright can adversely affect the dissemination of consensus standards. Finally, excessive IPR licensing fees and the fear of IPR infringement can reduce the adoption of a standard.

Remedies

Wherever possible, standards should specify the performance required from products, processes or services rather than describe the form or materials involved. This allows greater freedom for innovative design and manufacture and encourages the free movement of goods. Constructing standards in this way reduces conflicts between standards and IPRs.

Standards bodies are bound by rules to prevent anti-competitive practices and therefore cannot create monopolies with their standards. Therefore, standards bodies try to avoid the inclusion of patents in standards, and a patented invention is not referred to if any generic description is available. However, formal standards often encompass what are known as 'essential' IPRs. An IPR is deemed essential when it is not possible to make, use or operate equipment or methods that conform to a given standard without infringing that IPR. However, this is a test that can be hard to apply. Informal standards development is more flexible with regard to IPRs, but informal standards may not carry the same weight in the marketplace as formal standards, and therefore may not be the standard of choice for some businesses.

As a solution to IPR and standards conflicts, most standards bodies include procedures that take IPRs into account where a standard is in the process of being drawn up. Each participant is expected to declare at an early stage the IPRs it holds which are (or might be) essential to the draft standard if it were to be adopted. The owner is requested to give an undertaking in writing that it is prepared to grant irrevocable licences on royalty-free or fair, reasonable and non-discriminatory (FRAND) terms and conditions under such IPRs, with a waiver of copyright in documentary material. The standards body also makes sure that the patent in question is endorsed as a 'Licence of Right' at the Patent Office. This ensures that licences under the patent are available to all applicants as of right and that any disagreement of licensing terms is subject to settlement by the Patent Office. If the standard is found to contain essential patents, and the holders of the IPR will not licence under FRAND terms, the patented technology is removed from the standard and other unpatented methodology is inserted although, depending on the technology, this is not always possible. However, problems can arise in the definition of FRAND, since FRAND terms to a large multinational corporation might not be the same as FRAND terms to a small business. Furthermore, the royalty in question may not be the only royalty charged on a complex product, and the sum of the fees to license these rights may even exceed the total profit available to the product manufacturer. It is presently not clear whether 'reasonable' applies to the individual fee or the aggregate of all licence fees required to implement a standard.

Cross-licensing and patent pools

Cross-licensing and patent pools are tools to reduce conflict between competing companies. They can harmonize the co-existence of standards and IPRs, and simplify their use as part of a strategy.

Cross-licensing involves an agreement between two companies that grants each

company the right to practise the other's IPRs. Between companies with large IPR and product portfolios, the logistical difficulties of licensing patent-by-patent can become so complex that the only realistic approach is to negotiate broad cross-licences. Rather than blocking each other and going to court, or ceasing production, the two companies cross-license. Each company is then free to compete, especially with a royalty-free cross-licence, both in designing its products without fear of infringement and in pricing its products without the burden of paying royalty fees to the other. IPRs are therefore not normally used to kill off suppliers or commercial collaborators, or to exclude others, but to achieve a win/win agreement in which both parties achieve freedom to operate in a rapidly evolving market. However, the benefits of cross-licensing can usually only be accessed by companies with patent portfolios that are sufficiently broad and attractive to provide commercial value in place of a licence fee. To address this in some way, the terms of cross-licences are adjusted to take into account the value of the licensee's technology so that differently sized enterprises can enter into agreements. Cross-licensing may involve various field-of-use or geographic restrictions and may involve some, but not all, relevant IPRs held by either party. Cross-licences, like regular licences, may be confined to IPRs issued (or pending) as of the date of the licence, or they may include IPRs to be granted through a certain time period in the future.

When two or more companies control patents that are necessary to make a certain product, and when at least some actual or potential manufacturers may not themselves hold any such patents, a patent pool or a package licence can be used. Under a patent pool, an entire group of patents is licensed in a package. For instance, a device defined in a standard may be assembled from a large number of components, each protected by a separate essential patent and requiring a licence for exploitation. To save on administration and costs, all of the patents for the device are licensed together. Efficient licensing mechanisms, such as equitable patent pool schemes, which do not endanger the IPR regime, allow controlled diffusion into the standardization process.

Patent pools are able to resolve conflicts between IPR holders themselves and between IPR holders and standards users. These arrangements are becoming increasingly common in the software and communications fields, but several major companies still choose to keep their relevant patents out of the pool and exploit them using bilateral licensing in the traditional manner. Patent pools should be established early in the lifecycle in order to avoid overlaps and clashes with two or more pools driven by different interests. Patent pools for standardized technologies should contain only essential patents so that licences are not demanded by owners of non-essential patents, based upon their own declaration that the patent is essential; inclusion of non-essential patents may violate competition law. Cooperation between concerned parties can eliminate such non-essential patents appearing in patent pools. Recent examples of successful standard technologies that used patent pools include Digital Video Discs (DVDs) and 3rd Generation Platform (3G) mobile phones.

Glossary

Consensus standard

A standard created as part of a voluntary and transparent process of cooperation and consensus among all interested parties. Usually the process is assisted by a standards development organization.

Consortia standard

A standard drawn up by a limited collection of companies, organizations and/or individuals to meet a strategic goal. Membership often requires payment of a fee.

Copyright

An IPR for protecting material such as literary and artistic material, music, films, sound recordings and broadcasts, including software with a technical effect and multimedia.

Cross-licensing

An agreement between two companies that grants each the right to practise the other's IPR.

De facto standard

A standard produced by the unaided market, often by large powerful companies and consortia.

De jure standard

Another term for a consensus standard.

Formal standard

Another term for a consensus standard.

Informal standard

Another term for a *de facto* standard.

Innovation lifecycle

The stages through which an innovation passes during its route from the initial

idea, through development and market release, and finally to market maturity and decline. As new products are developed based upon old, the innovative features feed back into the lifecycle.

Intellectual property

Creative ideas and expressions that have commercial value and receive legal protection in the form of a property right.

Intellectual property rights (IPRs)

Specific forms of intellectual property, namely patents, copyright, trade marks, registered design, unregistered design right and know-how.

Know-how

Industrial information and data, including trade secrets. Also includes useful information, such as 'know-where' and 'know-who'.

Licence

A contractual agreement giving written permission to another party to use an IPR.

Licensing-in

Agreeing a licence with an external IPR owner to obtain key products or technologies.

Licensing-out

Licensing your IPR to another company or individual in return for royalties or other considerations.

Licence of Right

An endorsement at the Patent Office that means you cannot refuse to license your patent. This is in return for reduced renewal fees and is a requirement for participation in developing most consensus standards.

Open standard

Standards that spread the standardized technology without relying on IPR protection and licensing and are therefore free to adopt by anyone.

Patent

An IPR for inventions such as new and improved products and processes that are capable of industrial application. The patent gives the inventor and/or an applicant the right, for a limited period, to prevent others from making, using or selling an invention without the owner's permission.

Patent pool

A group of patents licensed in a package to save time and administration compared with licensing each patent separately.

Pre-standard

A document, such as a Publicly Available Specification (PAS), which does not meet all of the requirements of a full consensus standard, but which may form the basis of a future consensus standard.

Proprietary standard

Standards containing technology that is subject to IPR protection for which a licence must therefore be obtained to adopt the standard.

Publicly available specification (PAS)

An industry sponsored document that is produced at speed as it does not require wide consensus and has dedicated resource.

Fair, reasonable and non-discriminatory (FRAND)

FRAND refers to licensing terms that are often a condition for the inclusion of essential IPR in a consensus standard.

Registered design

An IPR for product appearance - the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, texture or materials of the product itself or its ornamentation.

Regulatory standard

A standard created as part of a regulatory process; usually developed by national representatives and interested parties to deal with an important issue, such as safety.

Specification

Another term for a full consensus standard.

Standard

An agreed way of doing something.

Trade mark

An IPR for the brand identity of goods and services, allowing distinctions to be made between different traders.

Unregistered design right

An IPR for the protection of the shape or configuration of a product.

Sources of Information

If you would like advice on the information contained within this guide, please contact:

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This guide is a project within the National Standardization Strategic Framework (NSSF). The NSSF is a means of co-ordinating the efforts of all interested parties to maximize the use of standards for the benefit of business, government and society. The development of the NSSF is being led by the Department of Trade and Industry (DTI), the British Standards Institution (BSI) and the Confederation of British Industry (CBI).

Further information about the NSSF is available on the web site: www.nssf.info

Feedback and participation would be welcomed and is invited from all those who wish to engage in the benefits of standards and adopting strategic approaches to standardization. To speak to someone about the NSSF, or to become more involved, please contact one of the partners:

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For more detailed information about standards, IPR, licensing, and financial and other business matters, please contact one of the relevant information sources that are listed in this part of the guide.

Standards Advice

National Standards Bodies (NSBs) are the organizations legally responsible for standards in a given country. The British Standards Institution (BSI) is the British NSB. In general, if you need any help with regard to standards, BSI should be your first contact point.

BSI cannot give advice on what may be the best course to take for your particular invention/innovation, but it can give general advice and help on the subject of using and developing standards.

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Fax: 0208 996 7001
Email: cservices@bsi-global.com
Website: www.bsi-global.com

CEN is the European Committee for Standardization. CENELEC is the European Committee for Electrotechnical Standardization. Together they prepare European Standards in specific sectors of activity.

CEN/CENELEC
36 rue de Stassartstraat, B-1050
Brussels, Belgium
Tel: + 32 2 550 08 11
Fax: + 32 2 550 08 19
Website: www.cenorm.be
Website: www.cenelec.org

ISO is a network of the national standards institutes of 148 countries, on the basis of one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system.

ISO Central Secretariat
International Organization for Standardization (ISO)
1, rue de Varembé, Case postale 56
CH-1211 Geneva 20, Switzerland
Tel: + 41 22 749 01 11
Fax: +41 22 733 34 30

Measurement Advice

The National Physical Laboratory (NPL) and the National Engineering Laboratory (NEL) provide advice on the most appropriate measurement technology for a standard. This can be informal advice or the provision of a committee member to a standards committee where measurement technology is critical.

National Physical Laboratory
Queens Road, Teddington
Middlesex TW11 0LW
Tel: 0208 977 3222
Website: www.npl.co.uk

National Engineering Laboratory
East Kilbride
Glasgow G75 0QU
Tel: 01355 220222
Website: www.nel.uk

Certification and Testing

The United Kingdom Accreditation Service (UKAS) is the sole national accreditation body recognized by government to assess, against internationally agreed standards, organizations that provide certification, testing, inspection and calibration services.

Contact the UKAS Information Desk for accreditation and technical enquiries:

UKAS
21-47 High Street, Feltham
Middlesex TW13 4UN
Tel: 0208 917 8555
Email: info@ukas.com

Intellectual Property Advice

Patent Office

The Patent Office cannot give advice on what may be the best course to take for your particular invention, but they can give general advice and help on the subject of patents and other intellectual property.

More details about obtaining a patent can be found in the Patent Office booklets *Patents basic facts* and *Patents essential reading*. If you plan on applying for a patent without professional help, you can get a free copy of the booklet *Patents application guide*, as well as information on registering trade marks and designs. These can be obtained from the Central Enquiry Unit or from the Patent Office website.

Central Enquiry Unit
For all general advice and information on patents and other intellectual property.
Concept House, Cardiff Road
Newport NP10 8QQ
Tel: 08459 500 505
Textphone: 0845 222 250
Email: enquiries@patent.gov.uk
Website: www.patent.gov.uk

If you would like to visit the Patent Office in person, either in Newport or

London, please call the Central Enquiry Unit first to arrange an appointment.

You can also visit www.intellectual-property.gov.uk, which aims to answer your questions about intellectual property.

Further information about innovation and exploiting intellectual property both nationally and internationally can be found on the following websites:

www.ip-europe.org
www.ipr-helpdesk.org
www.iprguide.com

International and European Patent Offices

For a list of Patent Co-operation Treaty (PCT) member countries, contact:

World Intellectual Property Organization (WIPO)
 34, Chemin des Colombettes, 1211 Geneva 20, Switzerland
 Website: www.wipo.int

For a list of European Patent Convention (EPC) member countries contact:

European Patent Office (EPO)
 Erhardtstrasse 27, D- 80331 Munich Germany
 Website: www.european-patent-office.org/epo/members.htm

The Office for Harmonization in the Internal Market (OHIM) carries out registration procedures for European Community trade marks and in the near future, for European Community designs.

OHIM
 Avenida de Aguila 20
 E-03080 Alicante, Spain
 Email: information@oami.eu.int
 Website: <http://oami.eu.int>

Patent agents

After reading this booklet, you may want more advice as patenting can be very complicated and the consequences

of doing something wrong can be serious. Chartered patent agents are professionally qualified to advise on any area of patenting, and any discussion with them will be in confidence.

A list of all patent agents registered in the UK can be obtained from the address below and local patent agents are usually listed in classified directories.

The Chartered Institute of Patent Agents
 95 Chancery Lane, London WC1V 7PZ
 Tel: 020 7405 9450
 Website: www.cipa.org.uk

Trade mark attorneys

ITMA is a professional body for trade mark attorneys in the United Kingdom.

The Institute of Trade Mark Attorneys
 Canterbury House
 2-6 Sydenham Road, Croydon
 Surrey CR0 9XE
 Tel: 020 8686 2052
 Fax: 020 8680 5723
 Website: <http://www.itma.org.uk>

Patents Information Network libraries

The British Library and the PATLIB UK network of public libraries throughout the UK can provide you with information about patents and how to search for them.

The British Library offers free access to all patent and trade mark databases, and staff will help you search these databases. As well as having access to patent information, you can also use the largest science and technology library in the UK, and a free collection of business-related material such as market research.

The British Library also offers a charged service by skilled information professionals to search for existing patents, and can provide an alerting service to keep you up-to-date with what is new.

You can get details of your nearest PATLIB library at www.patent.gov.uk from the Patent Office Central Enquiry Unit or from the British Library.

The British Library
96 Euston Road
London NW1 2DB
Tel: 020 7412 7901
Website: www.bl.uk/patents

Licensing executives and practitioners

Licensing practitioners can offer advice on all aspects of licensing your IPR. You should send all enquiries to the Secretary of the Institute.

The Institute of International Licensing Practitioners
Suite 73, Kent House, 87 Regent Street
London W1R 7HF
Tel: 020 7287 0200
Email: enquiries@iilp.net
Website: www.iilp.net

The Licensing Executives Society is the largest global group advising on all aspects of creating, managing and licensing your intellectual property.

The Licensing Executives Society
Administration Office
Northern Networking
1 Tennant Avenue
College Milton South
East Kilbride, Glasgow G74 5NA
Website: www.bi.les-europe.org

Inventor Support

There are a number of organizations specifically aimed at helping inventors develop their ideas and providing advice on finding financial help, for example, a joint venture with a business partner or licence.

One example of a non-profit-making organization that specializes in helping inventors is the Institute of Patentees and Inventors, which offers advice and guidance on all aspects of inventing.
Email: magnusinvestors@aol.com
Tel: 020 8541 4197

Another helpful independent organization is 'Ideas 21', which is dedicated to supporting inventors through holding networking meetings at the Patent Office, and through e-newsletters. Its website includes an Innovation Calendar sponsored by the National Endowment for Science, Technology and the Arts (NESTA) to help inventors find out what award schemes, exhibitions and events are taking place, and an Innovation Directory which lists professionals who can help you take your idea forward.

Tel: 020 7539 4993
Email: info@ideas21.co.uk
Website: www.ideas21.co.uk

The following schemes and resources are of particular interest to inventors:

The National Endowment for Science, Technology and the Arts (NESTA)

NESTA was set up to help creative individuals, including inventors, realize their full potential while also helping to turn creativity and ideas into products and services. For more details and a free information pack:

Tel: 020 7645 9538
Website: www.nesta.org.uk

SMART and Grant for Research and Development

Grant for Research and Development in England and Small Firms Merit Award for Research and Technology (SMART) in Scotland, Wales and Northern Ireland are government schemes providing grants to help individuals and small and medium-sized enterprises research and develop new, technologically innovative products and processes. For more details, contact any of the organizations listed under **Business Advice**.

Inventor clinics

The Chartered Institute of Patent Agents (CIPA) hold regular clinics at a number of sites around the UK, giving advice to inventors who are at the

early stages of developing an idea. Inventions and problems can be discussed in confidence with chartered patent agents for 30 minutes, free of charge.

Tel: 020 7405 9450

Website: www.cipa.org.uk

Innovation Relay Centres

Founded by the European Commission's Innovation/SME Programme, a network of technology advisory centres known as Innovation Relay Centres (IRCs) span the European Union, with eight in the UK. Their purpose is to promote innovation and encourage research results to be exchanged across Europe, as well as providing advice, consultation and training support. Help includes information on patent rights, licensing strategies, finance, venture capital and creating international joint ventures. To find your nearest centre, visit www.irc.cordis.lu

Business Advice

For information on all government funding and schemes to support innovation, you should contact Business Link. A national signposting service for Business Links is available.

Tel: 0345 567 765.

England

Business Link

Website: www.businesslink.gov.uk

Tel: 0845 6009 006

Northern Ireland

Invest Northern Ireland

Website: www.investni.com

Tel: 028 9023 9090

Scotland

Small Business Gateway

Website: www.sbgateway.com

Tel: 0845 6096 611

Scottish highlands

Business Information Source

Website: www.hie.co.uk

Tel: 01463 234171

Wales

Business Eye

Website: www.busesseye.org.uk

Tel: 0845 7969 798

See also the inventor contact list of the Business Link website at

www.businesslink.gov.uk/invention