

Intellectual Property and Eco-innovation for small and medium businesses

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What is eco-innovation?

For the purposes of this research report, 'eco-innovation' is taken to mean the development and introduction of new and improved products, services, technologies and ideas that deliver benefits in terms of environmental performance and/or sustainability.

Eco-innovation is a broad term. It ranges from the discovery of new and disruptive environmentally-friendly technologies (for example, hydrogen fuel cells) to the application of well-established methods to deliver sustainability benefits in new contexts (for example, finding new applications for biodegradable materials).

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1. Executive summary

Global demand for sustainable technology solutions is rising, and the UK, especially the 'Greater South East', is home to world-class innovations in this field. Many come from small and medium enterprises (SMEs), whose role in stimulating economic growth is well documented.

Whether they are creating entirely new solutions or integrating existing technologies within the eco landscape, knowledge-based SMEs are reliant on successful exploitation of their intellectual property (IP). Patents, trade marks and registered designs, together with other intangible assets, create barriers to entry and degrees of freedom to operate, facilitate investment, and underpin customer acquisition and retention.

In *Digital Opportunity*, the Government's recent review of IP, Professor Ian Hargreaves highlighted the difficulties many SMEs experience in identifying the right strategy for their commercial needs. This report looks at the specific challenges and opportunities IP presents for eco-innovators, with the aim of providing some clear, evidence-led conclusions and advice.

This report briefly sets out the IP landscape before focusing on the challenges facing eco-innovators seeking to protect and exploit their IP. It has been produced using four sources (described in more detail in section 5):

- *Qualitative primary research* through interviews with entrepreneurs involved with the EcoMind initiative;
- *Quantitative primary research* through the use of an online survey;
- *Secondary research* exploring IP issues facing SMEs, with assistance from the Intellectual Property Office (IPO);
- *Inngot's research resources* from previous SME attitudinal work.

The main findings can be summarised as follows:

1. Eco-innovators owning registered IP feel that there are a range of significant benefits associated with the protection they have gained.
2. While these innovators view the end result of IP registration as highly desirable, the process of obtaining their protection raises significant issues of cost, speed and disclosure.
3. Cost also emerges as a key consideration in the decision process for eco-businesses that have elected not to register any IP. While 'formal' IP is clearly not relevant for all, there is also evidence that many innovators are insufficiently familiar with their IP options.
4. Speed and secrecy are highly valued as strategies, both as alternatives to formal registration and used in combination with it.
5. While the survey results suggest that 'formal' IP registration levels are not high, there are many other 'intangible assets' eco-innovators create that are perceived to have importance and value.

Based on these findings, this report has created two new resources. The first is a set of ten questions and answers to assist entrepreneurs who are less well acquainted with the IP landscape in planning their strategy for a new invention. The second is a simple guide to help eco-innovators assess which IP rights are likely to be relevant for their inventions.

1.1: IP, SMEs and eco investment

The Hargreaves Review, Digital Opportunity, states that UK companies invested £137 billion on intangibles in 2008 - £65bn of it on IP. This compares with £104bn on tangible assets.

Research by NESTA, the National Endowment for Science, Technology and the Arts, has concluded that just 6% of high growth businesses create over 50% of all new jobs.

Environment research group Eiris claims that 750,000 investors are now opting to invest in green and ethical funds – three times the number in 2001. The amount of investment has risen to £11.3bn.

Establishing a UK Green Investment Bank has been one of the Coalition Government's main policy objectives. This is due to begin operations by April 2012 and will target areas such as offshore wind, waste and non-domestic energy efficiency. It will have initial capital of £3bn.

2. What is IP?

In UK law, legal rights apply to four distinct types of intellectual property (IP): **patents, trade marks, registered designs and copyright**. The first three of these have to be registered and undergo varying degrees of official scrutiny in order to be granted, whereas copyright protection is automatic once an idea has been “expressed” by being documented or recorded.

- *Patents* are used to protect the specific, unique features and processes of an invention. In return for a full technical disclosure, monopoly rights are granted for up to 20 years. Patenting is potentially important for physical, mechanical and electronic eco-innovations.
- *Trade marks* identify the origin of goods and services. They are important in building and protecting brand reputation amongst consumer and business customers. Registered trade marks are indicated by an ® symbol and offer protection for up to 10 years at a time, which can be renewed as required. Unregistered trade marks also have some protection in law.
- *Registered designs* protect external appearance, either of whole products or visible individual components. They are especially valuable if the physical ‘look and feel’ of an innovation is distinctive. In the UK, registered designs last for 5 years and can be renewed up to a maximum of 25 years. There is also an unregistered design right in law, though it is less comprehensive.
- *Copyright* protects the expression of an idea. It is particularly relevant for eco-innovations which are realised in software, as computer code is regarded as a “literary work”. Protection is automatic (though it is advisable to use the © symbol to indicate that it applies) and typically lasts for the life of the author plus 70 years (some types of copyright apply for less time than this).

The process of obtaining registered rights is type- and territory-specific. For example, there is a Community Trade Mark scheme (as well as individual country schemes) under which one application can grant EC-wide protection. However, while patents can be applied for using a unified process (the European Patent Convention or Patent Cooperation Treaty), they need to be translated into individual country patents if they are granted. This may be due to change (see panel 2.2).

Equally, while the rules governing IP within the European Union are generally consistent, legislation varies in other parts of the world. For example, it is possible to obtain patent protection for certain types of software innovations and ‘business methods’ in the USA which are excluded in many other countries, including the UK.

Some organisations use all of these ‘statutory’ rights. It is quite common for an innovation to be protected by patent (covering its operation), trade mark (covering its brand) and design (covering its appearance). Very few companies own no rights at all (copyright being the most abundant).

As well as formally recognised IP protection, the ways in which organisations develop and market their innovations can themselves become intangible assets that are generally recognised as falling within the IP ‘family’. These include:

2.1: Green Channel to speed up patent grants

*The Intellectual Property Office (IPO) introduced a ‘fast track’ patenting service to the UK called the **Green Channel** in May 2009 for innovations delivering an environmental benefit.*

Over 450 applications have been made at the date of this report, and more than 100 patents have been granted via this route. IPO quotes average patent grant times of 8 months for Green Channel applications compared with the normal 36 months.

There are no extra fees or special forms, but applicants need to supply supporting information making “reasonable assertions” about the eco benefits of their invention, as well as explaining which aspects of the patenting process they wish to accelerate.

- *Trade secrecy* – intentionally protecting knowledge within the business and taking steps to prevent its disclosure to people outside. These need to be managed using employment contracts and confidentiality or non-disclosure agreements, and may include measures to prevent any ‘reverse engineering’ of products or code.
- *First mover advantage* – focusing on speed to market for a particular innovation, on the basis that substantial market share can be built up (and a degree of ‘lock-in’ created) before other companies can gear up to compete.
- *Brand reputation* – particularly important for service companies, brand reputation is about associating value and quality with a name, often as part of carving out a specific company niche. It takes time to build, but can be quickly damaged.

Not all strategies used by organisations are compatible with each other. For example, use of trade secrecy and first mover advantage can be hard to reconcile with the publication requirements of patenting.

No two businesses are identical, or identically positioned in their markets. As a consequence, the IP priorities for businesses vary considerably. This is especially true in a sector as broad as eco-innovation, ranging from planning and design (where copyright and designs are dominant) to heavy equipment manufacture (where patents are more likely to be relevant).

In this particular EcoMind study, only 3 out of 7 interviewees and 20% of the 77 online survey respondents had applied for or obtained *registered* IP rights in the UK. This in itself is not a surprise, as Government innovation surveys consistently show that the majority of businesses do not apply to protect their IP, preferring to rely on secrecy and speed to market.

The importance of these other protective strategies varies from company to company. For example, 12% of survey respondents said they regarded first mover advantage (see p10) as “vital” and a further 35% regarded it as “very important” or “quite important”, but 51% had not made use of it. Similarly, 12% felt non-disclosure agreements (see p10) were “vital” and 46% thought they were “very important” or “quite important” – but one-third (34%) had not used them.

Amongst unregistered assets, the most widely valued emerges as ‘brand reputation’, with 80% of EcoMind survey respondents considering it vital or very important (though only 17% of total respondents had taken steps to safeguard it with a trademark). This was closely followed by specialist subject knowledge or technical know-how, at 78%.

The diversity of these findings, shown in more detail in section 5 following, appears to illustrate the importance to businesses of obtaining commercial and legal advice on IP that is specifically tailored to their situation.

2.2: European patents move a step closer

25 out of 27 member states have so far agreed to introduce a common system for registering patents across Europe, using the EU’s ‘enhanced co-operation’ procedure.

This move is likely to significantly reduce the costs of pan-European patent protection, to the benefit of UK-based eco-innovators. However, there are two remaining challenges.

The first is that the European Court of Justice ruled in March 2011 that a Community Patent Court would be incompatible with EU law. Without this, disputes over Community Patents would be very difficult to resolve. Proposals to overcome these issues are currently under discussion.

The second is that Spain and Italy are currently refusing to accept that applications only need to be made in one of the three ‘official’ patent languages (English, French or German).

3. What are the challenges?

General issues

As its name suggests, intellectual property is essentially concerned with ownership rights, which operate in a similar way to other forms of personal property law. However IP can appear a daunting subject to those approaching it for the first time.

Entrepreneurs needing further support do not always know how and where to obtain it. The 2011 IP Review, *Digital Opportunity*, identified three main issues impeding SMEs in getting the support they need: the complexity of available offerings; a lack of broad based, *strategic* business advice; and the substantial costs involved in IP management.

In *Digital Opportunity*, 27% of SMEs surveyed agreed that “*there are too many services available – it’s difficult to choose the right one.*” Two thirds (66%) indicated that they would like to have access to an intermediary who can provide basic advice on IPR (applications, maintenance, licensing, disputes or enforcement) in place of a legal advisor, with interest highest amongst the smallest firms who had started trading recently. In the EcoMind survey, 28% of respondents said that not knowing enough about what IP protection involves was a “major consideration” in not applying for any registered rights.

The Government’s research concluded that only around one-quarter of intangibles-intensive SMEs write down an IP strategy, and a similarly small proportion explicitly align their IP strategy with their business plan. This was of special concern when concurrent interviews with investors found that SMEs’ ability to present a strong business plan (incorporating intangibles and IP) was a key factor in their decisions on whether to offer financial assistance.

Patents: issues of cost, time and disclosure

While copyright emerges from IPO surveys as being the most frequently held type of intellectual asset, patents are the kind perhaps most commonly associated with the term “IP”. The key challenges for inventors and businesses seeking to obtain patent protection relate to **cost, time** and **disclosure**.

Cost is an issue on two fronts: the cost of obtaining the protection, and the potential cost of defending it.

In terms of the cost of obtaining protection, the main obstacle is not the official fees. In the UK the fee for obtaining a patent is £280, and renewal for the full term of 20 years costs £4,500 (according to *Digital Opportunity*, this compares with £11,500 for a 20 year patent term in Germany and £4,700 in the US – less for small entities).

The costs consist mainly of the professional advice needed to research, file and register an effective patent. Research conducted for *Digital Opportunity* found that the average cost to an SME of applying for, maintaining and protecting a patent was reported to be £20,700, compared with £4,800 for a trade mark or design. The mean fee paid for external advice on applying for, maintaining and protecting a patent was estimated to be £13,800; the comparable figure for a trade mark or design was £6,300.

3.1: The disclosure dilemma

Rafat Jahandideh has developed a distinctive “bi-functional” item of furniture which encourages people to recycle plastic bottles by using them to create a seat. Her innovative design has a number of possible applications in public spaces and could be attractive to drinks companies.

Rafat is being encouraged to enter her prototype into competitions, as this may provide access to further funding to take the idea forward. This might include trying to secure a patent.

However, she is uncertain how this type of disclosure might impact her ability to protect aspects of her design. Anyone who sees it will instantly understand how it works, and be in a position to copy it.

These administrative costs are, however, modest compared with the costs of defending a patent or prosecuting infringers. The predecessor to *Digital Opportunity*, the *Gowers Review*, identified that “a firm challenging a patent can expect to pay £750,000 for a simple case, largely due to the costs of the adversarial system.”

This is one reason why some SMEs question the effectiveness of the patent system. While the rights may exist to defend a company’s patents, the costs of establishing them against a well-funded opponent are very high. One of the EcoMind survey respondents expressed this as follows: “Even when rights are secured, the cost of enforcing them for small businesses is out of reach, particularly when they are often breached by much larger, even global corporations. Corporates know this and take full advantage of it.”

It was therefore no surprise to find in the EcoMind survey that cost stood out as being the single most important obstacle. When respondents who had not registered IP were asked why, the most strongly held reasons related to the cost of professional advice (65% agreement), the potential cost of defending any registration gained (60%), the cost of extending protection to all the territories required (53%), and questions over value for money (51%). A similar picture emerged for those who had registered IP: 39% strongly disagreed with the statement that they were “not worried” about how much it would cost to defend their IP.

There are some initiatives under way to address these cost issues. In terms of application costs, the European Union is moving towards a single community patenting model (see panel 2.2), though significant obstacles to its adoption and effective working remain. To address the potential costs of defence, the UK has introduced the Patents County Court (PCC) to streamline procedures. It uses a fixed scale of recoverable costs capped at £50,000 and a damages cap of £500,000. However the PCC is still at an early stage, and it remains to be seen what level of cost reduction is actually achieved.

Time is a challenge because the average period needed to secure a ‘standard’ UK patent is 36 months. This seems at odds with the pace of technical innovation, in the eco-innovation sector as in many others.

The process is designed to provide up to a year between initial application and the request for a search, which in turn leads to the preliminary examination and publication. Following publication, there is then a ‘substantive examination’ prior to grant. Until a patent grant is confirmed, it is always possible that it may fail or require substantial amendment, all of which creates uncertainty.

If they wish, UK eco-innovators can apply for the ‘Green Channel’ fast-track process, which enables patents to be granted in 12 months or less (see panel 2.1). Applicants can request the search and/or examination stages to be accelerated, as well as early publication. This can be useful where an early grant will provide the basis for tackling infringement, or where investors want to be sure patents are granted before providing funding (however, early granting is not always desirable, as section 4 of this report explains).

3.2: DIY challenges

Retaining Walls Solutions (RWS) specialises in designing, manufacturing and installing a variety of wall systems. The company applied for a European patent in 2009 for its brick moulding system, due to the potential ease with which it could be copied by someone with the relevant technical knowledge.

Commercial Director Colin Gaunt says three attempts to file via the Green Channel (see panel 2.1) met with problems. In view of the potential costs of professional advice, RWS decided to prepare the application themselves, but found the process “very time-consuming and frustrating”.

Colin observes that even without attorney fees, the downstream costs are considerable. Also, having filed the patent, which has not yet been granted, RWS still has concerns that other companies may engineer around the patent without infringing it. These factors would make the directors think twice before going down the patenting route in future – but if they do, they will certainly employ a patent attorney.

RWS takes steps to protect its confidentiality using non-disclosure agreements but has found these hard to enforce overseas.

In the EcoMind survey, opinions were divided on whether the official IP registration process was “reasonably swift”, with more disagreeing than agreeing. This may be due to the fact that respondents with registered IP had more experience of trade mark registration than patenting, and only one respondent indicated that they had used the Green Channel. If the question had been limited to patents, it seems likely the response would have been more negative.

Disclosure has two aspects: prior disclosure, which affects the prospects of successful patenting, and the disclosure which happens as part of the patenting process.

By definition, patents have to be novel and non-obvious. If an innovation is ‘obvious’ because information about it is already in the public domain, it will no longer be patentable. This is a particular concern when seeking to patent inventions based on university activity, where there are many incentives to publish research outcomes. However, it is a consideration for any company or individual discussing a potentially patentable discovery with a third party.

Clearly the inventor’s concern is not just about patentability but the possibility that the invention may be stolen. It is the reason why confidentiality agreements are often put in place, and why so many EcoMind survey respondents regarded these as “vital” or “very important” (as summarised in section 2 above).

The second aspect relates to the obligation placed on all patent applicants to provide full technical details of how their invention works, in return for a state-backed period of exclusive use. Many innovators are reluctant to place this information into the public domain, particularly as publication happens before the substantive examination and grant. This means that imitators may be able to take a product to market before the originator has done so. It is a particular concern for inventions with international potential: even a granted UK patent does not in itself provide any protection against an imitator in another territory where no protection has been secured.

The EcoMind survey found that of those applying for protection, ‘showing their hand’ in this way was a major issue, with only one respondent agreeing that they were “not concerned” about disclosure, and 54% expressing some or strong concern. Interestingly, though, disclosure did not come up as one of the strongest reasons for *not* seeking to obtain registered rights – about one-quarter of respondents agreed it was a major or minor consideration and around one-fifth felt they may have already disclosed their innovation.

Copyright and Open Source

Inngot recently conducted a six-month study for the Creative Industries Knowledge Transfer Network into IP and Open Source (see panel 3.4). The CIKTN is funded by the Technology Strategy Board, the government’s innovation agency. This ‘Beacon Project’ took in views from a wide range of creative industry practitioners, including designers and software companies. The process involved expert interviews, five large and small workshops and an extended online survey which obtained 350 responses. The executive summary and full report are available from the CI KTN website (at connect.innovateuk.org/web/creativektn).

3.3: Protecting a concept

Bag Re:Born offers an innovative range of re-usable carrier bags, each design of which “transforms” to suit a specific purpose – extending their life and promoting reuse, recycling and reducing litter.

Entrepreneur Richard Simmonite attended seminars on IP to get a better understanding of his business needs before deciding to file two patents in the UK and subsequently extend the filings worldwide using a PCT. Richard decided to employ professional attorney support.

This was expensive but viewed as necessary in progressing the concept further and taking it to a marketable position. Richard also believes patents will be of value when negotiating agreements with larger business partners.

3.4: What is Open Source?

Open source is an approach which promotes access to the source materials of an end product. The term is most commonly used in the software context, where access to source code (normally restricted to the copyright holder) is licensed to others, who have permission to modify it. This licence is often free of charge, simplifying collaborative development.

This project reached four main conclusions:

- i. The comparatively stable industry business models of the past have given way to a much more turbulent environment, where a combination of routes to market need to be deployed to generate commercial success. Sharing and distribution of IP is becoming increasingly important, but creates new challenges.
- ii. Collaboration is essential for small and micro-businesses in the sector, but co-creation (whether between businesses, or between businesses and their customers) raises important IP issues.
- iii. While copyright law gets in the way when establishing rights ownership and obtaining permission to produce derivative works, it does not offer adequate protection against digital theft. It is therefore in the interests of most businesses to focus on exploiting their IP as widely as possible.
- iv. The turbulence in business models also affects investment and funding prospects because it increases uncertainty over how returns will be generated.

Freeform comments submitted as part of the EcoMind survey reflected some of these issues. On point ii), it was observed that *“there are certain processes that everybody needs to be able to use freely. Current IP rights force you to re-invent the wheel all the time.”* EcoMind has conducted a separate study on this area, *How to address the question of Intellectual Property in eco-innovation clusters*, to be published at www.bsk-cic.co.uk/programmes/ecomind.

Point iii) is especially challenging for architects, designers, photographers and other creative eco-enterprises whose IP is rendered digitally. This frustration was apparent from other comments received, such as:

“...it is difficult to protect a customised design for a potential client being passed on by that client to another provider...”

“...I have been told that my client can continue with my design using other consultants as my fees have been paid - therefore as an architect it is difficult for me to protect a design unless the fees have been withheld...”

Alternative strategies to protect intellectual assets

Entrepreneurs across industries who are new to IP initially understand it as being the protection of an idea. However, this is not really the case. A patent protects a particular way of achieving a specific end, but not the end itself; a design protects the visual appearance of an idea, but not the objective that led to its creation; copyright protects the particular expression of an idea, but not the idea itself.

Where the idea itself is likely to generate commercial advantage (for instance, of adopting a certain approach to solve a particular problem), many companies now adopt strategies to **keep their ideas secret** and rely on a combination of confidentiality and first mover advantage either in addition to, or frequently instead of, formal registered rights. One EcoMind survey respondent said: *“Having lost two ideas under patent previously, our new products have been recorded every step of the way via digital and computer format. We feel safe in the knowledge that all this information is stored by our legal representative, as no other information is available on our products anywhere else.”*

3.5: Reputational risk

Brighton-based **Claire Potter Design** specialises in sustainable interior and exterior design. All materials used are recycled or recovered, bringing their own story with them.

Imitation is an increasing concern for Claire. She has seen examples of other designers producing work very similar to her own, and feels that automatic design right does not offer sufficient protection. She also doubts that her business could meet the costs of prosecuting infringers.

While the business was producing specialist artwork, this was less of a problem, but as she moves towards creating her own product lines, Claire wishes to have formal IP rights in place from the beginning. She is particularly concerned about her brand reputation and the effect of ‘copycat’ products which are not backed by the same sustainable ethos.

Claire is liaising with ACID (Anti-Copying In Design) but would like to see a single source for high quality IP SME advice – she feels that “there is too much conflicting information out there.”

This avoids the ‘triple whammy’ of high costs, lengthy timescales and forced disclosure of patenting, but is not without its own risks and disadvantages.

Non-disclosure agreements (NDAs) or confidentiality undertakings have many uses in business, and as a result come in a range of different forms. Not all prospective customers or development partners are prepared to sign these agreements. Large corporates receive many approaches from SMEs and have legitimate concerns about committing to secrecy, in the knowledge that their own teams may independently be developing solutions which could generate an overlap. SMEs have been known to interpret this reluctance as an indication that the large business does indeed intend to steal their idea.

Further research has been conducted into this area by BSK-CIC: the forthcoming report, *Understanding barriers to collaboration between SMEs and large organisations on eco-innovation*, will be available at www.bsk-cic.co.uk/programmes/ecomind.

Internal secrecy is another important element in the maintenance of confidentiality, but measures need to be in place to protect it. Young and growing businesses often do not have access to professional advice on human resources issues, and either lack service agreements and contracts altogether, or do not include the right clauses regarding confidential information. This is usually discovered when a prospective investor points these deficiencies out - or a key employee leaves and sets up in competition.

First mover advantage—or being first to market with a new product, service or technology— is highly valued by some companies, and can be critical to build market share. However, inventors sometimes fail to plan for the educational/familiarisation costs involved in marketing something truly disruptive. There are many examples where the first entrant is not the company that emerges as the market leader in the longer term.

3.6: Copycat prevention

AeroThermal is a small specialist group of companies applying autoclave technology to waste treatment, reducing waste volume and changing the cell structure to make it suitable for further reprocessing. Biogas and waste heat created during the process are captured and re-used.

Aspects of AeroThermal’s technology are easy to copy once disclosed. Indeed CEO Ian Toll has experienced cases where potential customers have tried to copy these aspects, and even claim ownership of them. Confidentiality agreements have been enforced to prevent this from happening.

AeroThermal also chose to protect its innovation by filing a range of patents. These were applied for with professional support using the IPO’s Green Channel in February 2011. The company is also considering taking out protection in the USA and China.

Overall, the patenting process is described by the company as “expensive, but essential”.

4. What are the solutions?

As section 2 concluded, the IP solutions likely to be most effective will vary between different businesses. Five particular areas for consideration are evident from the outcomes of EcoMind's interviews and survey.

Get good advice early on

While eco-innovators are understandably concerned about the costs of professional IP advice, the risks of starting off on the wrong foot are not to be underestimated, and can seriously undermine a business's ability to capitalise on its innovations.

In the EcoMind survey, over half (54%) of those who had obtained registered rights had some familiarity with the process, having been through it before. However, of those who had not registered their IP, nearly half (49%) felt that "not knowing where to start" was a major or minor consideration; on the same basis, 43% said that they would like to investigate the subject but "had never got around to it".

Addressing these issues also matters even if the main IP at issue is copyright rather than something registrable. Here, the experiences of EcoMind interviewee Andrew Lawrence of Gainwell Futures (panel 4.1) are instructive. "Access to the appropriate professional advice at the point the development work is being carried out is an absolute must. We acted in retrospect and were fortunate to identify these issues early and now have a secure and robust technology base as a business, but it could have easily been very different for us."

Similar IP issues need to be considered when developing any existing technologies for commercialisation. Andrew's advice to others here is simple: "If you are going to develop an existing technology for your business, make sure you secure your position on all IPR to the resultant technology first... this also means get the right advice early on."

For general information, the IPO (www.ipo.gov.uk) offers a range of guides, all of which are downloadable from its website. It has also built a range of online diagnostic tools under the **IP Healthcheck** banner, which produce tailored confidential reports. The Business Link website also contains information and a range of useful links.

When it comes to specific advice, most IP attorney firms will provide an introductory consultation at minimal or no charge. It therefore pays for entrepreneurs to familiarise themselves with the issues most likely to be relevant to their business, so that best use can be made of the free advice that is available.

Use registration time to your advantage

While trade marks and designs can be registered relatively swiftly, the standard UK patenting timescale has a number of distinct stages, which take time – as previously indicated, an average of 36 months. However, this is not necessarily a bad thing.

4.1: IP ownership requires timely resolution

*Gainwell Futures provides a number of solutions as a business including a technology called **GEMS** – an advanced multi-utility energy management system that incorporates a combination of hardware, communications and software technology.*

The hardware element is provided by third parties under licence, but the software is Gainwell's own IP, developed by contractors employed by Gainwell.

The importance of clear IP ownership from a sales and business value perspective was highlighted as MD Andrew Lawrence negotiated agreements with large partner organisations to grow the business.

Since the company contracted out the initial software development, the rights to their developers' work were not automatically assigned in full to the business. There are also potential pitfalls with allowing software developers to incorporate third party components.

Andrew would like to see clearer guidance provided for SMEs on key IP issues and better access to quality advice at an early stage of development.

When an application is first filed, a filing date is provided by IPO, which becomes the effective start date of any patent that is subsequently granted. There is usually a period of one year following this first submission before applicants have to ask for a search: this in turn is usually provided within four months, and followed by publication at around 18 months – the point at which the application becomes searchable by the world.

Because the initial costs of patent filing are comparatively modest, some companies take the view that it is worth submitting the application and then focusing over the following 12 months on exploring all the potential routes to market using confidentiality agreements – in the knowledge that if the patent is granted, the original filing date will apply. The existence of the application, which creates a “patent pending” period, provides a built-in disincentive for others to attempt to file a conflicting application. It also has wider value, because it can provide a priority date when seeking to extend protection to other territories.

The Intellectual Property Office’s own guidance puts the case as follows: *“You should think carefully about whether a fast grant is in your best interests. For example, the earlier your patent application is published the earlier the technology is in the public domain. Many applicants are happy to proceed to grant at a slower pace because it enables them to develop and plan the commercialisation and marketing of their invention whilst the patent application process continues. It gives them time to determine whether their invention is commercially viable before committing to a greater financial outlay.”*

It is not legally necessary to delay market entry for a new product while the patenting process is being completed. However, there is of course no certainty that a given application will result in a patent being granted, and limited scope exists to revisit the original application once it is submitted (generally speaking, claims and scope can be narrowed, but not broadened). Accordingly, this route does not replace the need for proper professional advice at the outset.

Maintain secrecy by design

For some innovators such as Richard Simmonite (panel 3.3), the operation of an invention is clear for all who see it. This arguably makes the grant of IP rights such as patents more important. It is a quandary which also affects copyright works: these have to be recorded in some way in order for copyright protection to apply, but as soon as they are, they are vulnerable to copying.

However, for other companies, it is possible to hide their invention within the inner workings of a device. The example of Aquaread (panel 4.2) shows how this can be done by the use of semiconductors which have the business’s unique know-how embedded within them. They cannot be readily ‘reverse engineered’ as any attempt to dismantle the products will destroy the chip inside them.

Even if it is not possible to conceal the nature of an inventive step completely, these techniques can buy more time for an eco-innovation to establish a foothold in its chosen marketplace.

4.2: Maintaining secrecy

Aquaread produces a range of analytical and process equipment designed for use in the field and in laboratories. 95% of its sales are export-related and its largest market is Australia – the only one in which it has applied for formal IP protection (a trade mark).

Having evaluated its innovations with the help of some free IP support, MD Craig Harrison says the business concluded patent protection would be narrow and expensive. Only one aspect would be patentable and the rest of the know-how was already in the public domain. Aquaread was also concerned about the risks of disclosure, which patenting would involve, and felt that speed to market was the top priority.

Accordingly, Aquaread chose to embed its IP in onboard processors. These are encased in resin, and the units cannot be dismantled without destroying them.

Despite this precaution, Aquaread still finds the use of confidentiality agreements important, especially in discussions with its international network of 70-80 dealers.

Make creative use of trade marks

As sections 3 and 5 of this report illustrate, brand reputation is regarded by EcoMind survey respondents as the most important unregistered intangible asset of all. Registering a trade mark can help to protect the reputation associated with a branded set of products or services by preventing others from using a name that is the same or confusingly similar. Over 90% of survey respondents who had any registered IP had trade marks as part of their arsenal.

Where other registrable IP is not relevant, a trade mark can often provide a convenient 'hook' with which a number of other intangibles can then be associated. For example, branding is often important when maintaining customer relationships, extending product ranges or service offerings. Similarly, while unique service formats are not registrable as IP, they are frequently associated with their originating brand.

An ability to protect a brand is particularly important if licensing of specific named products or franchising a business's operations forms part of a company's growth strategy.

Disclosure does not prevent design registration

While prior disclosure can cause a patent application to fail, it is not usually fatal for a design registration, provided that this is carried out in a reasonably timely fashion. So long as a design remains novel and distinctive at the time the application is made, it can have been on the market or otherwise visible to others for up to 12 months previously. It should therefore provide a means to address the dilemma faced by Rafat Jahandideh (panel 3.1).

This enables product designers in particular to establish how much market 'pull' a particular innovation may have before finally determining how best to protect it and how much to spend on it. Also, where the external appearance of an invention is fundamental to its unique performance attributes, it may provide a lower cost and faster route to achieving protection than patenting.

It is important to bear in mind that designs which follow inherently from the function of a particular object are *not* eligible for design registration. Designs do not make it possible to claim a monopoly over a particular purpose – but do enable a distinctive solution to be protected. This same logic applies, in a slightly different form, to patents and trade marks.

4.3: Maintaining confidentiality

Non Disclosure or Confidentiality Agreements ('NDAs' for short) are often used by innovators prior to holding any detailed discussions about their invention with a third party.

A key point to consider in the wording of an NDA is whether its obligations are 'one-way' or mutual, binding both parties to maintain confidentiality. In either case, you will wish to ensure that your ability to commercialise your invention is not unreasonably restricted by anything you sign.

It is also usual for NDAs to explicitly refer to the purpose for which they are being put in place.

You do not need an NDA when holding discussions with professional advisors such as patent attorneys.

Further information on NDAs is available from a number of sources.

The Intellectual Property Office provides a guide, available at www.ipo.gov.uk/nda.pdf.

You can also obtain free templates for NDAs at www.innqot.com.

5. Research methods and key findings

Inngot used four main sources when compiling this report for EcoMind which are briefly summarised below.

- *Qualitative primary research.* This involved interviewing seven entrepreneurs involved with the EcoMind initiative, using a set of questions aimed at uncovering their attitudes and approaches to IP. The findings are summarised in sections 3 and 4 of this report. Interviewee activities included analytical equipment manufacture, sustainable design, construction, waste reduction, waste treatment and resources management.
- *Quantitative primary research.* An online survey was conducted over a two-week period in October 2011, targeted at EcoMind participants and a broader population of companies involved with environmental sustainability. This drew 77 responses from innovators covering a range of eco-sectors, including building and product design; energy production, conversion and conservation; recycling and waste reduction; and environmental planning. While this is a comparatively small sample, some consistent patterns are still evident, as can be seen from the charts which follow.

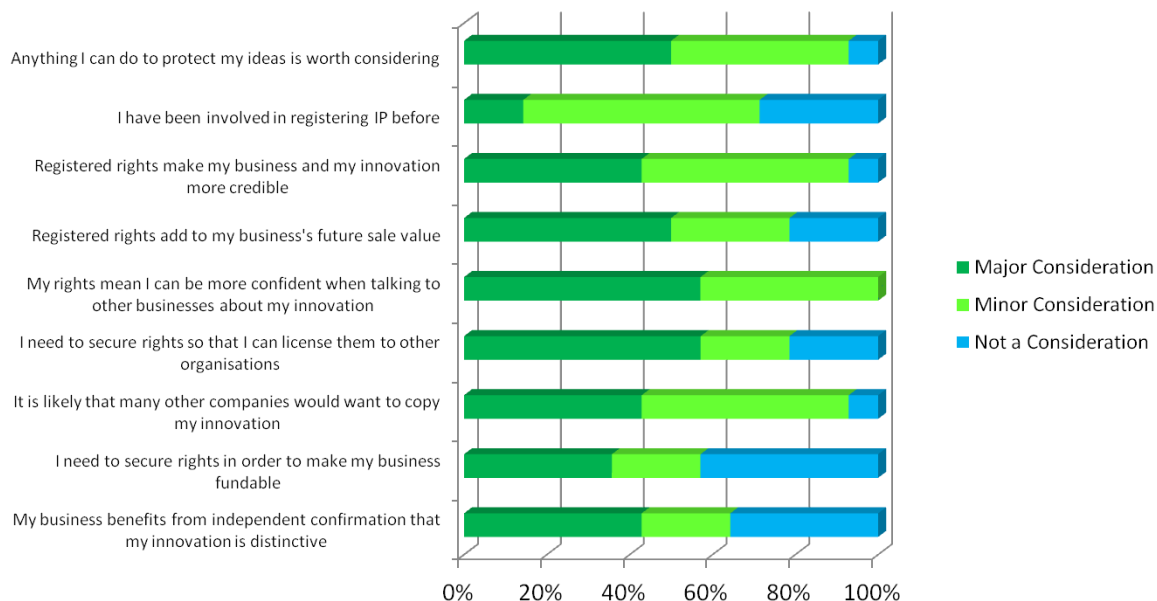
The sample was evenly divided between businesses that had been trading for up to 2 years (30%), those trading for 3-10 years (33%) and those trading for 11 years or more (37%). It was firmly rooted in the SME community, with almost four-fifths of respondents (79%) being micro-businesses involving 5 people or less.

- *Secondary research* exploring IP issues facing SMEs, with assistance from the Intellectual Property Office (IPO). The Independent Review of IP and Growth by Professor Ian Hargreaves, published in May 2011, and its supporting documentation were particularly timely and relevant.
- *Inngot's research resources* from previous SME attitudinal work. This includes the IP and Open Source review for the Creative Industries KTN, referred to in section 3.

The following charts show the responses to five issues explored during the survey.

i) There are many perceived advantages in registering IP

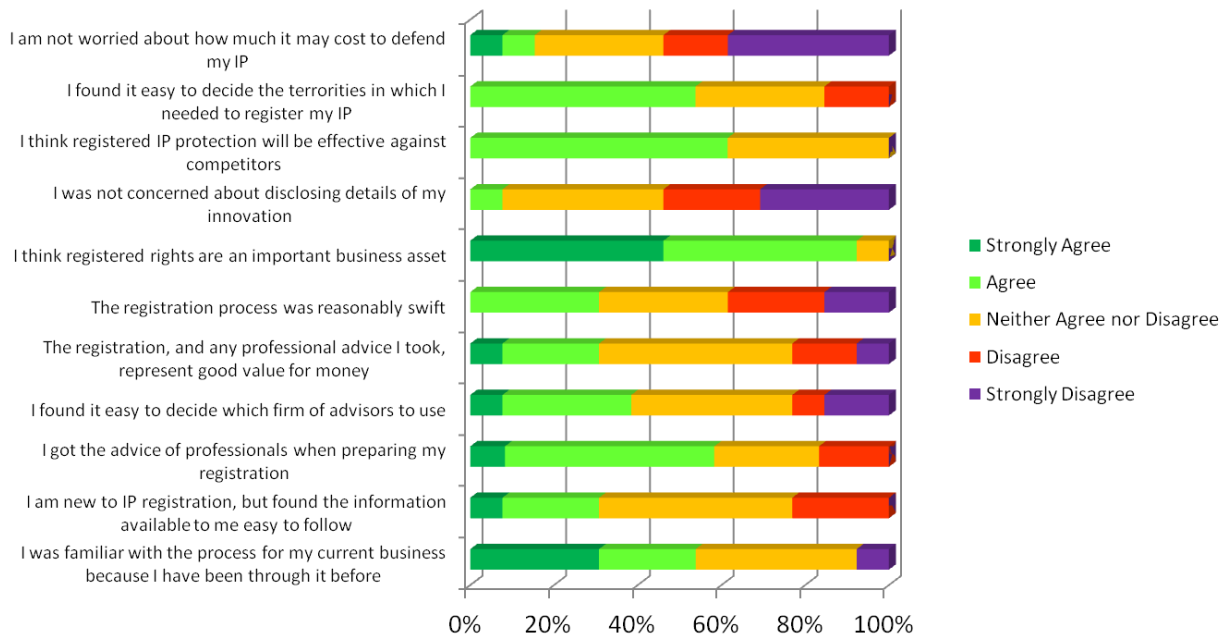
This question asked the respondents who had obtained registered rights (20% of the total sample) which of the statements provided were a major or minor consideration in their decision to apply.



The chart shows a strong level of agreement with *most* of the statements provided, and complete agreement about the advantages registered rights offer when talking to other organisations. Preventing copying, enhancing credibility and getting the best protection possible also all score highly in the minds of those obtaining IP. While funding appears least relevant, over half of respondents nevertheless agreed that it was a consideration.

ii) The registration process holds a number of challenges, particularly around cost, speed and disclosure

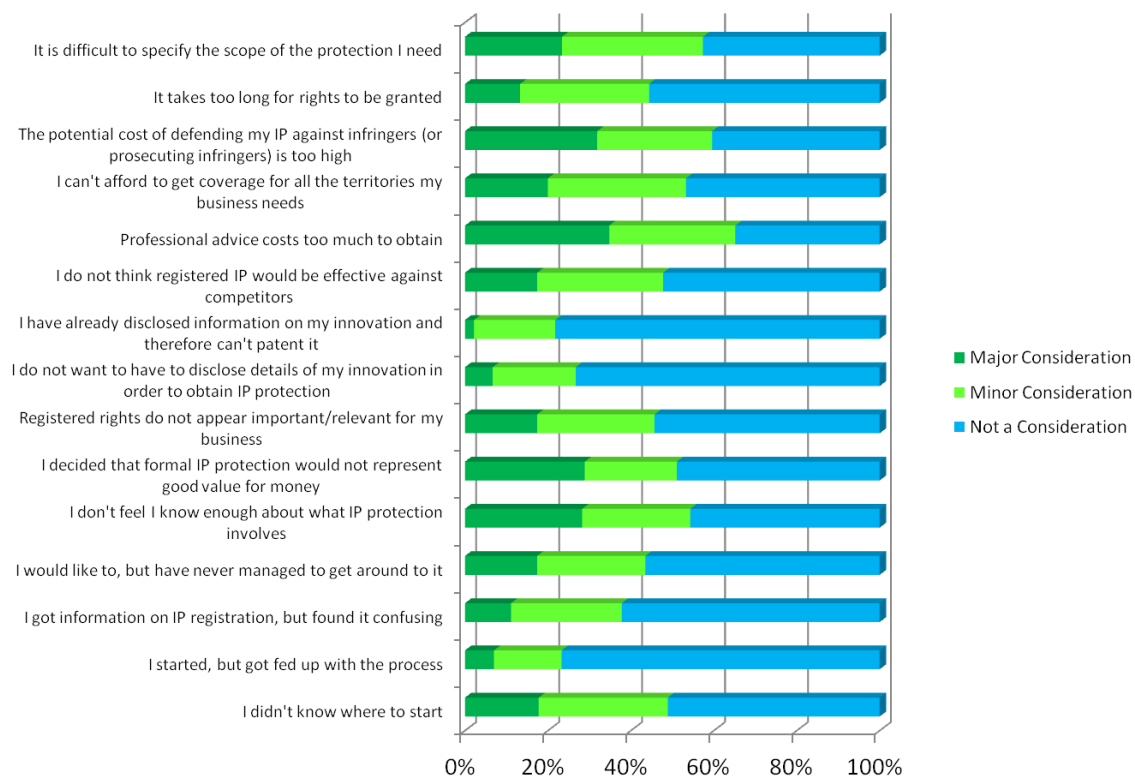
This question asked the respondents who had obtained registered rights (20% of the total sample) to indicate how far they agreed with each of the statements provided, based on their experience of the registration process and their perspectives following completion.



The phrase which attracted the strongest level of agreement (shown by green bars) was that “registered rights are an important business asset.” The phrases attracting the strongest disagreement (purple and red bars) related to the potential costs of defending IP and the issue of disclosure. These percentages are summarised in section 3 of this report.

iii) Cost and lack of familiarity are stopping entrepreneurs from registering IP

This question asked the respondents who had *not* obtained registered rights (80% of the total sample) which of the statements provided were a major or minor consideration in their decision not to apply.



There are high levels of agreement that the costs of getting coverage, obtaining advice and defending IP against infringement are key considerations in deciding whether to apply for formal protection.

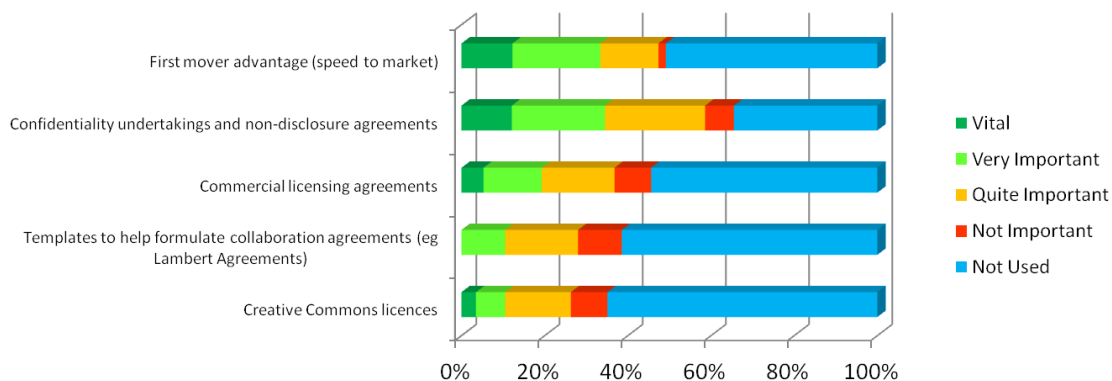
Almost half of those responding (47%) felt registered rights did not appear important or relevant for their business. 23% said they had started but got 'fed up' with the process.

Availability of information is clearly a factor: 28% felt their lack of knowledge about what the process involves was a major consideration, with a further 24% agreeing that it was a minor consideration. In addition 38% said that they had obtained information on IP registration, but found it confusing.

Interestingly, the question of disclosure did not rank highly for many respondents. Only 2% had prior disclosure as a major consideration, and only 7% were strongly concerned to avoid it (these results differed for those who had sought and gained IP protection).

iv) Speed and secrecy are popular strategies

This question was open to all (it was answered by 70% of respondents) and aimed to establish the importance of a few of the key tactics often used to protect or exploit IP and intangibles which do not involve registration.

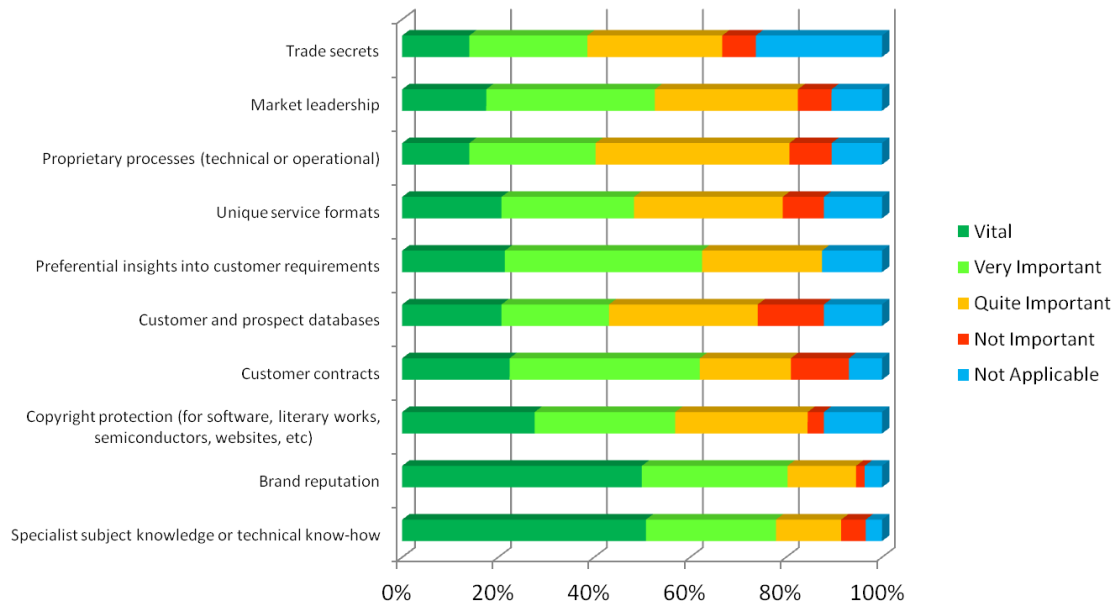


Overall, non-disclosure agreements to maintain secrecy had the largest following, with first mover advantage of strong importance to many—but not a consideration for half.

Collaboration agreements and Creative Commons licences were not frequently used, but it was interesting to note that two respondents felt that the latter had been “vital” to them.

v) Aside from ‘formal’ IP, intangibles are seen by businesses as being valuable and important

This question was open to all (it was answered by 70% of respondents) and asked which non-registrable assets businesses felt were most critical for success.



While trade secrecy is an important consideration for some companies, the specialist know-how they possess and the reputation associated with their brand are the two aspects respondents regard as most important, with a very substantial proportion—around half—characterising these as “vital”.

6. Help & support with intellectual property

Intellectual Property Office (IPO)

The UK Government agency responsible for registering patents, trade marks and designs. The IPO website provides access to search existing registered IP and links to relevant European databases. It offers a range of useful assistance and advice, including an online **IP Healthcheck** to help innovators formulate strategy and consider IP-related issues such as licensing and non-disclosure.

www.ipo.gov.uk
0300 300 2000

Business Link

The first point of contact for businesses looking for support in the UK. The current Business Link website has a well-populated section called “Create, innovate and protect” which provides a range of useful links and self-help tools.

www.businesslink.gov.uk

Intellectual Property Awareness Network (IPAN)

A group of over 50 organisations with an interest in making the IP landscape easier to navigate. Members include the British Library, CBI, Design Council, FSB and the Royal Society. The IPAN website provides a range of information especially aimed at organisations and individuals new to the subject.

www.ipaware.net

Chartered Institute of Patent Attorneys (CIPA)

The professional and examining body for patent agents in the UK. CIPA offers an informative website which contains a searchable directory of patent agents.

www.cipa.org.uk
020 7405 9450

Institute of Trade Mark Attorneys (ITMA)

The professional body which represents trade mark agents in the UK. ITMA’s website includes the facility to search for your local trade mark adviser.

www.itma.org.uk
020 7101 6090

Inngot

The online innovation directory offering tools to define, promote and value IP and intangible assets, including free templates for NDAs and other resources.

www.inngot.com
01235 854085

BSK-CiC

A Community Interest Company (CIC) dedicated to supporting Small and Medium Size Enterprises (SMEs) across the South East to develop and grow. BSK-CiC also runs the Innovation and Growth Team in Kent.

www.bsk-cic.co.uk
08457 226655

Selected further reading

Digital Opportunity: A Review of Intellectual Property and Growth

An independent review by Professor Ian Hargreaves

www.ipo.gov.uk/ipreview.htm

The IP Healthcheck online service:

www.ipo.gov.uk/web/iphealthcheck

Information on the Green Channel for patent applications:

www.ipo.gov.uk/types/patent/p-applying/p-after/p-green.htm

My IP: Intellectual Property Explained

www.ipo.gov.uk/myip.pdf

Intellectual Property (IP): 10 big questions about your eco-invention

What have I got?

Record all the assets you think you could have. Patents protect ways of doing things, designs protect appearance, trade marks protect brands, copyright protects words, code and images. Your most important 'intangible' may not be registrable –

Is it unique and distinctive?

Search widely to look for similar innovations. Lack of novelty is the biggest reason IP applications fail. You can use official databases (but you'll need experienced help to check and interpret what you find). Carry out online searches to see what else

Do I own it?

Make sure the answer is yes. If an innovation is created by employees of a company, the business normally owns it – but assume nothing. Take special care if you have involved third parties, be they friends or paid contractors, and obtain written

Who else knows about it?

Generally, the fewer people, the better. Early disclosure can spoil your chances of obtaining a patent and allow other people to get to market ahead of you. Exchange confidentiality agreements before showing your invention to future partners

Can I keep it a secret?

The more visible your inventive step is, the more useful it is to have IP protection. Some innovations can be concealed, but even these can often be "reverse engineered" or deduced by someone else with appropriate technical knowledge. Do you

Who wants it?

Check your markets are big enough. If you are going to invest time and money in your IP, make sure you're going to get a return on it! Link your IP strategy to your marketing plan. Consider how you will reach your target market, and whether it is

Are there lots of potential uses?

It may not be possible or desirable to protect every aspect of your invention. Some innovations address very specific problems, while others have a host of different applications. You may find it preferable (as well as more affordable) to obtain

Are there lots of competitors?

Where competition is intense, being first to market can be a big advantage. Think about how you can acquire customers quickly. If you want to patent something with eco-benefits, you can use the 'Green Channel' to speed up the process. Assume

Can I afford to protect it?

Can I afford not to? The costs of patent protection usually run to tens of thousands of pounds over time, so if you need patents, you'll need cash. If possible, establish a "pipeline" so that you have income to offset these costs. If you need to raise in-

Have I taken a proper advice?

Try to do so at an early stage. Many professional advisors and business support networks will provide you with some initial advice free of charge. You are unlikely to be able to file a strong and successful application without getting help at some point.

Consider applying for a
patent, if...

Consider registering a
design, if...

Consider registering a
trade mark, if...

You are thinking of selling your invention, or licensing it to other people so that they can

This invention is yours, or belongs to your business

There is something novel and distinctive about your invention -it has not already been invented!

Your invention concerns how something works, how it is made or what it is made from

Your invention has industrial applications

You have not shared information on your invention (or have *only* done so by using confidentiality agreements)

Prioritise applying for a patent, if in addition...

It will be difficult or impossible to hide how your product or technology works, so others will find it easy to copy

Significant costs have gone into your invention, and/or you will need substantial investment to build and sell it

There are large international markets or applications for your invention

If you don't know whether this is the case or not, it can be worth applying for a patent to buy you time to find out

If your invention is 'green', and speed to market is a priority...

Consider using the 'Green Channel' to accelerate your patent application process

This invention is yours, or belongs to your business

There is something new and individual today about the appearance of your invention

It is less than 12 months since your design was first made visible to other people

The design of your invention is not dictated by its technical function

You believe that other people will want to copy your design

You have a name for your invention (or company) that is distinctive and not merely descriptive

You have developed a distinctive logo

No-one else in your market is using the same name as you, or anything that is very similar

Brand reputation is likely to be an important element in your sales and development plan (including franchising)

You have, or plan to have, a distinctive offering in a highly competitive environment

Some other points to consider...

If your invention relates to software, it will automatically have some protection under copyright. You may be able to patent it too, if it has a technical effect (e.g. it improves the performance of something in the "real world")

Copyright protection also applies to expressions of your ideas such as drawings, diagrams and descriptions, and to compilations of data you hold. Use the © symbol to indicate that you are claiming copyright

Your invention might be covered by unregistered design right. This only applies to three-dimensional items and is restricted to the right to prevent copying. It can last for up to 10 years from when you first market your design, and also applies to semiconductor chips

If you have a design, but want to keep it secret, you can ask the Intellectual Property Office to defer publication of it for up to 12 months from the date you register your application

Unregistered trade marks have limited protection in law. You can take action against someone "passing off" their goods or services as yours, but you will have to prove that you have rights to the mark. If you register your mark, taking action against infringers is easier

Registering company names or domain names does **not** provide trade mark protection or prove that you are entitled to use a particular mark

Use the Intellectual Property Office's **IP Healthcheck** online diagnostic tool, to help you evaluate your options and create a tailored confidential report. You'll find it at www.ipo.gov.uk/iphealthcheck

Please note: this short guide is not a substitute for professional advice, which you should obtain in connection with any applications you wish to make to register intellectual property.

Intellectual Property and Eco-Innovation

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Website: www.interreg4a-2mers.eu

The EcoMind project is led by:

BSK-CIC

Foord Annexe
High Street
Rochester
Kent ME1 1EW
United Kingdom

Telephone: +44 (0)8457 226655

Websites: www.bsk-cic.co.uk
www.businesslowcarbon.co.uk

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Inngot Limited

99 Milton Park
Abingdon
Oxfordshire OX14 4RY
United Kingdom

Telephone: +44 (0)1235 854085

Website: www.inngot.com

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EcoMind programme

EcoMind was designed to support sustainable business growth, facilitate the development and market penetration of the new sustainable products and services.

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