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A BIT OF A MUDDLE: MISTAKEN PATENTING BEHAVIOUR TYPICAL IN START-UPS AND SMALL FIRMS

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Abstract

In today's knowledge-based economy, intellectual property (IP) has become a major asset for many businesses. Patents are the most expensive form of IP and managers need to be able to make informed decisions about when to patent. Smaller businesses tend not to have in-house lawyers specialized in patent law. However, for the smaller firm in particular the decision to patent signifies a considerable financial investment.

Unfortunately, managers of start-ups and small firms often know little about patent law or the ways in which patents are used as strategic tools in competition. Ignorance of patent law can lead to major mistakes being made. These mistakes may be so disastrous that they could even jeopardize the commercial success of businesses. Based on literature and a research project on patenting in small firms, a number of typical mistakes are addressed in this article.

Keywords: Intellectual property, patent law and strategy, start-ups and small firms

Topic groups: Law and business, Management education, training and development, Technology and innovation management

INTRODUCTION

For a long time, businesses would have described their main assets in terms of their physical assets, such as land, buildings and equipment. Yet today, in many industries the value of a firm's intellectual property (IP) is substantially higher than the value of its other assets. As the global economy increasingly becomes a knowledge-based economy, knowledge assets are becoming "the main game" (Nonaka & Teece, 2001: 1).

IP has become a vital asset for many firms today and IP protection can be just as essential for the small firm as the large, for high-tech as well as more low-tech firms. For example, as the history of the Swedish firm Tetra Pak has shown, having

good IP protection for a milk carton can be just as vital to the development of a firm as IP protection for firms producing computer related inventions.

Even for those business professionals who prefer to leave IP matters to lawyers, it is necessary for them to understand how to identify IP and when to take steps to protect it, even if that means merely knowing when to consult a lawyer (Lemper, 2012). Unlike large firms, start-ups and small firms often do not have in-house IP specialists. In practice it means that a manager of an SME will carry a heavier burden of responsibility for IP policy than his/her counterpart in a large firm (Knight, 2013).

Of all forms of IP, it is patent protection that is the most expensive. As the most expensive form of IP protection it is vital that the managers of smaller firms, which often have more modest capital reserves, understand patent law and patent strategy. In the worst case scenario, a manager ignorant of patent law could already have made irreparable mistakes before he/she even decides to consult a patent lawyer. Furthermore, managers need to know when it will be essential to their business to patent an invention and when patenting will not add value and only be an unwarranted expense. They also need to make sure that employees are aware of the dangers of infringing the IP of others and have put safeguards against this in place. But how much do the managers of start-ups and small firms actually know about IP and about patenting in particular?

METHOD

In order to gain some insight into the patenting behaviour of small firms, a qualitative research project was set up. This consisted of a set of 13 in-depth interviews conducted with legal professionals and managers of small firms in England and the Netherlands. The interviews were conducted on the basis of semi-structured questioning. The opportunity was given to legal professionals to describe their experiences with SMEs and the managers of SMEs had an opportunity to describe how they had dealt with their inventions.

Although the sample was small, a picture soon started to emerge of what managers knew about patenting and what they did not know but should have known. The managers of some small firms had learned about patenting, however, that knowledge had often been acquired through trial and error. Some managers appear to have known very little. A number of mistakes that were brought to the fore in the interviews held with legal professionals, as well as those that emerged during interviews with managers of small firms, are presented in this article.

MANAGERS MAY HAVE FALSE EXPECTATIONS OF PATENT LAW

For managers whose education background is not in law, understanding IP law can be something of a challenge. This is partly because of the complexities of IP law, but also partly because of a lack of affinity with legal reasoning in general. Law is a very different discipline from disciplines such as science and technology or business administration. Managers who expect that the law consists of black letter rules

that simply have to be applied to a case will have misguided expectations of what patent law will do.

Law is not an empirical science, with conclusions reached after experimentation and observation. For example, a physicist can predict how an object thrown from a height will behave because of the principles of gravity. Those principles will apply in the same way wherever that object is being thrown in the world because gravity is a universal law of physics. There is, however, no such thing as universal patent law; global patent law simply does not exist. The principles of patent law in the USA, Asia and Europe are not identical. Managers of small firms are often not aware of this. Furthermore, even within the same jurisdiction, how a law will be interpreted by the courts can vary and different judges hearing the same case may reach different conclusions.

A good example to illustrate that point is the patent dispute between Improver Corporation and Remington. Improver had invented, and had been granted, a European patent for a depilatory device. They marketed an embodiment of the invention under the name "Epilady." Remington produced a rival device known as "Smooth and Silky." The 'Epilady' used a "helical spring" to remove hair from arms and legs. Remington used a "rubber rod with slits" to remove the hair rather than a spring. The question was whether this variant, being a rubber rod rather than a helical spring, fell within Improver's patent claims. If it did, then Remington was guilty of patent infringement. It would have to pay damages and withdraw the Smooth and Silky. If the rubber rod construction fell outside the ambit of Improver's Epilady patent claims, Remington was in the clear and could continue to market its Smooth and Silky.

The case was heard in the United Kingdom, Germany and the Netherlands. All three countries are signatories to the European Patent Convention. Consequently, all three countries have similar patent law. It was conceded in the Court of Appeal in the United Kingdom that Remington's variation would have no material effect on how the invention worked, as both rod and spring pulled out the hairs in a similar way. The Court decided that an expert would think that it was obvious that the rubber rod would work in the same way as the spring. However, looking at the language used, the Court concluded that the patentee was claiming only a "helical spring", not anything else, and so a rubber rod could not be included within the Improver patent claims because if Improver had wanted to include a rubber rod it would have known that it was obvious to say so. As Improver did not mention a rubber rod, but only a "helical spring", it obviously did not want to include it as part of its patent. Consequently, the UK court found that there had been no patent infringement by Remington.

When the same case appeared before courts in the Netherlands and Germany, the opposite conclusion was reached. The Court of Appeal in the Netherlands found for Improver. It held that it is fair that the patent applicant who mentions the "helical spring" in the patent claims should also obtain protection with regard to a different hair gripping form that works in the same way. Whether that protection is fair towards third parties has to be decided according to what a skilled person would

expect to be the extent of protection. Third parties should realize that the concept of the helical spring in the patent claim may be generalized in such a manner that a device such as the Remington one falls within the scope of protection conferred by the patent. The German District Court also found for Improver. The German Court held that the rubber rod was identical in effect to the helical spring disclosed in the Improver patent, and the rubber rod would also be considered as an obvious equivalent to the helical spring by a person skilled in the art given the knowledge available (Improver cases, 1990 and 1993). The Improver case is a classic example of the same patent on the same invention being interpreted in different ways by different courts. That such divergence could take place was rarely anticipated by managers who had not previously been involved in litigation.

Patents as fuzzy property

What the *Improver Corporation v Remington* case shows is that it is not always possible for a legal professional to predict the outcome of litigation. Law is rarely black and white; it is most often grey. And that is particularly the case in patent law. Patents, like other forms of IP, fall under the category of property law. However, patents can be a fuzzy form of property. Unlike property such as land or furniture, patents are intangible property; a form of property that cannot be felt or touched. A patent is an abstract concept; a certificate of a patent award is symbolic of something of value but in itself is simply a piece of paper.

So how does a firm know what exactly is protected by its patent? The boundaries of its patented property are set down in the patent claims. These claims act as a fence around the property being claimed as your invention. What falls within the fence is protected; everything outside the fence is not protected. This metaphorical fence is formed by words, and where there are words there is the potential for ambiguity. The words in the patent claims will have to be interpreted if a party alleges that a patent has been infringed. What a judge considers that a patent actually protects is not always what the patent owner thinks it protects; a court might have a different interpretation of your patent claims from the interpretation you expected. A patent is not the absolute guarantee many managers expect it to be. As the Improver case shows, different jurisdictions hearing the same case may reach totally different conclusions as to what exactly is covered by the patent. Where the alleged infringing product is a variant, rather than an identical copy or a very different product, it is virtually impossible to predict with any absolute certainty what the outcome of litigation will be. Indeed, Bessen and Meurer concluded that there is “no reliable way of determining patent boundaries short of litigation” (Bessen & Meurer, 2008: 53). Managers need to understand this aspect of intangible property in order to anticipate the kind of problems they can have with patents as a business tool and how rivals can use their patents against them by alleging infringement.

The legal form of a patent

It is easy for businessmen to presume that once they have a patent they can begin to produce and sell their invention. That is a mistaken presumption: a patent does not give you the right to use the invention. The patent owner has the right to

prevent others from making, using, offering for sale, selling or importing a product that infringes the patent for a fixed period of time. In other words, it only gives the right to exclude others from using your invention. It is a negative rather than a positive right. This distinction is important because inventions usually build upon other inventions. Businesses often develop inventions that are an addition to or an improvement upon an existing invention relevant to their business. They have a patent on that improvement or addition. They do not necessarily have a patent on the underlying, existing technology. If the underlying technology is still subject to someone else's patent, then a product that incorporates that underlying technology can only be marketed if permission to use the underlying technology has been given by its owner.

One of the managers I interviewed as part of a research project on patenting in small firms had indeed not realized this. He considered that as he could buy component parts for his invention in the shop, he was free to use that technology. He had not appreciated that if the underlying technology is still patented, his firm might need to pay a licence fee or royalties. In the worst case scenario, a patent owner could simply refuse to allow the technology to be used. A patent owner may even be maintaining that patent simply to block competition.

The legal consultants I interviewed in my research project pointed out that this was something managers of SMEs had not always taken into account; they had simply not realized that using their invention could mean having to use the intellectual property of others and that they would need to have permission to use it if it was still patented. If the patent owner refused to licence the technology or sell the patent on the underlying technology - and blocking is a common form of patent strategy - this could result in a firm having paid a substantial sum for a patent for an invention it can do little with.

Who is the patent owner?

Being the inventor and owning the patent is not necessarily the same thing. If the inventor was an employee, and the invention was made during the course of employment, the right will usually belong to the employer. That is the default position although IP savvy managers know it is sensible to incorporate a provision assigning IP rights to the firm in the employee's contract. If a firm has not done so, the danger is that there will be discussions concerning what actually constituted the 'course of employment' for that particular employee if a potentially successful invention has been produced.

If the inventor was not an employee but an outside contractor, a manager should not presume that his/her firm will own the IP just because it commissioned and paid for the work to be done. Agreements need to be in place concerning IP ownership. The same applies if the firm is considering entering a joint venture agreement. In a joint venture it could be the case, for example, that both partners are contributing parts of their own patented technology to produce the new invention. It is necessary to make very clear who owns what aspects of the jointly developed IP.

THE DANGERS OF NOT KNOWING THE BASICS OF PATENT LAW

While it cannot be expected, nor is it necessary, that managers have the knowledge of trained IP lawyers, ignorance of the basics of patent law exposes the firm to danger. If a firm wishes to patent an invention, that invention must be new (referred to in the USA as novelty), an inventive step (referred to in the USA as 'non-obvious'), be capable of industrial application (the US requirement of utility) and not excluded subject matter.

Easy mistakes

Not being aware of the full ramifications of these terms could be fatal. One example will suffice to illustrate the point. To be patent eligible it is a condition that the invention is new. That requires that it is not part of the so-called 'state of the art'; it has not been made available to the public whether in writing or by speech or any other form by anyone at any time anywhere in the world.

Even one person being told about the invention, if they were not told in confidence or under a non-disclosure agreement, can destroy novelty and ruin any chance of obtaining a patent. This means that when talking to third parties about possible licensing, or raising capital for the project or being potential joint venture partners, a manager must make sure this is done in terms of confidentiality: using so-called non-disclosure agreements will prove all parties knew it was confidential. However, a manager enthusiastic about the firm's invention could all too easily cross the line. If he or she has disclosed the invention at a talk at a conference, a seminar, a prototype presentation or a blog on the Internet it has been disclosed. The invention is no longer new and is no longer patentable. The stringency of the test of newness is because a patent provides a monopoly over a new and potentially very useful product or process.

If the invention has been disclosed before filing, the only hope in such a case would be to file a patent in a country that has a so-called 'grace period'. This means that in a set period of time preceding the filing of a patent application disclosures of the invention do not constitute prior art. Grace periods can vary, for example it is one year in the USA and six months in Japan. However, many countries do not have grace periods in their patent law. In Europe, with very limited exceptions, such disclosures would exclude the inventor from filing for a patent in the member states signed up to the European Patent Convention (EPC). Quite simply, the invention is no longer patent eligible in those countries. If Europe is where the firm does most of its business, this could be a severe blow. Disclosure before filing is a basic but easy mistake to make for a manager of a small company without in-house expertise.

SOME TYPICAL MISTAKES IN PATENT STRATEGY

If a manager is considering patenting an invention, the first question he/she must ask him/herself is 'what is the firm trying to achieve with this patent'? Is it trying to achieve freedom to operate, so it patents its invention to make sure that its competitors do not patent that technology? Or is it trying to block competitors with a patent making it not possible for competitors to market their improvements on

its underlying technology? Or is the idea not to produce the product itself but to use the patent as a means to acquire licensing fees and/or royalties? Or is the intention to use the patent to leverage cross-license agreements in order to have access to competitors' technology? Patent strategy must be integrated into the overall business strategy.

Patents are a tool; a patent should not be a goal in itself. Several of the legal professionals interviewed pointed out that managers of smaller businesses too often patent because they think this is what is expected. Sometimes they patent because they have developed a non-rational, emotional relationship with the invention: it has become their 'baby'. It is popularly assumed that the inventive process is very different from artistic creativity; it is only analytical, rather than intuitive and dynamic. Recent research shows that the common stereotypes segregating artistic creativity from scientific creativity, as well as the entire left-brain/right-brain paradigm, are vast oversimplifications (Mandel, 2010). Emotional attachment to an invention can make a firm blind to whether there really is a market for that invention or indeed whether it is inventive compared to the products and processes already out there. The amount of money wasted on R&D in Europe alone for inventions that are already out in the public domain, or are already patented or are not patent eligible is enormous (EPO, 2007).

Failure in drafting the patent claims

Naive managers have a tendency to think that they can draft the patent documents themselves. This is a particularly attractive idea for start-ups and small firm on the misguided belief that it would save money for the firm. In the sample of managers of small firms that I interviewed, there was indeed one manager who had drafted his own patent documents.

Some managers fail to appreciate that a patent is not just a technical document; it is also a legal document. The wording of the claims must be very carefully chosen by the patent lawyer or patent agent. What results is a specialized 'patent language': indeed many inventors say they can hardly recognize their own invention when a professional patent agent has drafted the patent documents. Many of the managers I interviewed were amazed by the legal language of the patent claims.

Even when top lawyers are used to draft the claims, there is still no absolute guarantee that all courts will interpret the claims in the way the patent owner believes they should be interpreted; the Improver case is a classic illustration of this. Nonetheless, one of the worst mistakes any manager can make is to draft his/her own patent documentation. Drafting a patent is a complex and difficult task. Patent lawyers/agents are highly skilled people. They are also very expensive to employ. However, not paying for the services of a good patent agent is a false economy. If the invention is a success, the poor wording of the patent claims will allow competitors to undermine the patent (Knight, 2013). More experienced firms can spot the language of an amateur in patent claims immediately. They will rip the patent claims apart, by designing around them, and little will be left standing that is of any use to the patent owner.

Failure to defend the patent

Patent infringement is a notoriously complex area of law. Businesses wanting to undermine the patents of others tend to use two lines of attack: arguing that the patent is invalid or that their invention falls outside the patent claims of the other. There are several ways of invalidating a patent. One way is to show that the subject of the patent is not new; it was known before the filing date of the patent itself. This amounts to finding a piece of prior art that was not found at the time of the patent and showing that it was in the public domain. Another way is to show that the invention at issue was not an inventive step. In both cases, larger firms with more resources have an advantage. If a large legal department is sent to find prior art, the chances are great that they will find something somewhere. To undermine the inventive step criterion, a battle of experts will ensue. Each side will be looking for an expert in the relevant field. This expert will argue that a person with ordinary skill in the art, i.e., one familiar with that particular area of technology, would have found the invention obvious, given the common knowledge in that area of technology and the inventions that were already out there. Expert testimony is expensive.

Managers must be prepared for this. Yet it would seem from the interviews that all too often managers have not set aside funds to protect the patent. The focus has been on investing in the patent, although that money may well be wasted if there are no funds to defend the patent. Other cheaper alternatives to patenting may be a better strategy. For example, if the invention is a process it may be better simply to keep the invention secret. As patent litigation is extremely expensive, and comprehensive insurance cover virtually non-existent, this is a point managers should, but very often do not, bear in mind when deciding whether to invest in patenting an invention.

Failure to avoid infringing the IP of others

Managers must ensure that their businesses do not infringe the IP rights of others. An infringement lawsuit is not only expensive, but it is time consuming and distracting. Managers need to be aware of the risk from unauthorised acts by employees because of the legal doctrine of vicarious liability. Companies can be held vicariously liable for the acts of their employees in the course of employment. Even though an employee commits an act that the employer has not authorised, the firm can be held accountable. Managers must therefore ensure that the firm has all the appropriate licences or agreements in place for all the IP that the employees use. Regular checks or audits to ensure that employees are complying with these procedures are necessary (Gollin, 2008). This requires managers, however, to know enough about IP. Unfortunately, that is not always the case.

CONCLUSIONS AND IMPLICATIONS

The mistakes that emerged from the interviews in my research project indicate that start-ups and small firms too often know little about IP in general and patenting in particular. From the interviews, it could be concluded that some managers of small firms, particularly those of high-tech start-ups, did have knowledge of IP. Some managers have learned through trial and error. However, all

too often managers of small firms seemed to have been ill prepared to deal with the patenting issues that could confront them. Indeed the legal consultants I interviewed, both in England and the Netherlands, expressed how often they had been shocked at this ignorance. It also appeared that the kind of mistakes commonly made by managers in the Netherlands were the same sort of mistakes commonly made by their English counterparts.

This ignorance about patenting has serious implications. A lot of inventive activity takes place in small firms. Unawareness and inexperience puts these small firms at risk of being outmanoeuvred by larger, more IP savvy firms that have ready access to IP specialists. Managers of small firms often have false expectations of a patent. If they do manage to acquire a patent, it is not always the absolute guarantee of protection for their invention that many presume it will be. They have not understood how the law deals with patent claims. Furthermore, they may not even be able to use their patented invention because they do not own the underlying technology. Inventions may never be marketed because they are blocked by the patents of large firms with the money to keep an arsenal of patents for the very purpose of blocking their rivals. Or an unwitting manager of a small firm may lose the chance for his firm to have a patent by disclosing an invention before filing a patent application on it; once it is out there, the invention is then used by others who already have the resources in place to market the product.

Not understanding about the dangers of disclosure before filing will become particularly pertinent with the advent of crowdfunding. Crowdfunding is a relatively new phenomenon, but relevant in particular to start-ups. Crowdfunding can be defined as a collective effort of many individuals who network and pool their resources to support efforts initiated by other people or organizations. This is usually done via or with the help of the Internet. Individual projects and businesses are financed with small contributions from a large number of individuals, allowing innovators, entrepreneurs and business owners to utilise their social networks to raise capital.

For SMEs and entrepreneurs, not only can crowdfunding provide start-up capital, it provides several non-financial benefits: validation of product features, market segmentation, price and demand, pre-sales and customer feedback as well as word-of-mouth marketing and a stable, committed shareholding structure (De Buysere et al., 2012).

If the subject matter of the crowdfunding campaign is a product, in order to attract this investment, potential inventors must be able to understand the nature of the product. In the case of crowdfunding, it is hard to imagine with respect to some products how an inventor could protect his/her invention from disclosure while providing suffice detail to allow an investor to make an informed choice. Where is the line between setting out the nature of the product in sufficient detail to attract investment and the type of disclosure that would prevent the start-up from being awarded a patent if it would wish to have patent protection? Patent protection is expensive, not least because of the need to have a skilled patent agent or lawyer to draw up the patent documentation. The cost can deter

inventors from seeking patent protection before acquiring funding. If the inventor wants to keep the option of patenting a product open, he/she will at the very least have to be careful of what is disclosed before beginning a crowdfunding campaign. To be aware of this issue does, however, require knowledge of IP law. Yet only a very small minority of start-up founders receive some kind of IP training before or during the launch of their business (Science|Business, 2014).

The inevitable conclusion is that educational institutions are failing to prepare future managers to deal with IP. Inventors *in spe* in the science and technology faculties of universities should all receive a course on the basics of patenting. Business schools too seem to be curiously out of step with the demands of a twenty-first century knowledge economy. IP for managers should not be an elective taught to a few innovation management students, but should become a compulsory, core subject taught in all management schools.

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