

Design IPR - a blessing or a burden

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Abstract

This paper examines the most significant intellectual property protection options available to lone entrepreneurs as well as small and medium Enterprises (SME). SMEs are recognised as an important source of innovation yet have limited resources and knowledge to select, secure and enforce their legal rights to their innovations. This paper focuses predominantly on a comparison between patents and registered designs. It will conduct a cost-comparison, and evaluate effectiveness of both measures, before assessing to what extent either of the two measures can be deployed by design-led start-ups. To do so, it will discuss current changes in the UK patent bill, examine past and current start-ups, and sketch out the typical venture development processes. This study relies predominantly on qualitative data collected through open and semi-structured interviews with designer-entrepreneurs. The majority of studies do not differentiate between large corporations, small and medium enterprises (SME), and micro-scale start-ups. Levin et al admit to that when stating that ‘the exclusion of those without publically traded securities undoubtedly means that small start-up ventures, important sources of innovation, were underrepresented.’ (Levin et al, 1987, p. 791) This constitutes a problem, because the fact that the latter have limited access to financial resources and complementary assets such as manufacturing facilities and distribution networks sets them aside from established businesses. This study is aimed at filling the relevant knowledge gap through focusing on early-stage start-ups. Teece argues that IP can be utilized to compensate the lack of complementary assets during the early phase of a business development. But Teece discusses this matter in conjunction with the risk of being imitated (Teece, 1986, p. 297). However, the risk of radical innovations to be imitated during the start-up phase is comparatively small, because the markets are mostly unproven, in some cases non-existent. Compared to established profitable businesses, start-ups, many of which are in the pre-trading stage, face a different set of challenges such as the search for seed funding, prototyping, route to market development etc., and they have different means of tackling these problems such as incubation schemes, peer-to-peer networking, bootstrapping and so on. This study will sketch out development models and strategies, which will provide the independent designer entrepreneur with guidance in their decision-making.

design creativity; product design; design education

‘As an inventor, it is important to understand how the patent system works and to do as much as you can to protect your intellectual property before you share information.’
(Haberman, 2014b)

The Royal College of Art (RCA) in London prides itself in being the world's only wholly postgraduate art and design school. It attracts high-calibre students from different countries. Some great ideas emerge from these postgraduate studies, and some of these ideas become viable business propositions. In the course of the last decade, the RCA have increased their efforts in incubating graduate-led start-up businesses, most of which are built around product designs? Why products? Why not service propositions, or textile designs, pottery ranges, or illustrative work? The suspected answer is IP. Novelties in the field of product design and engineering are the most likely to qualify for patenting. What cannot be protected, cannot be defended. What cannot be defended, is unlikely to succeed commercially, at least not on a grand scale. But how exactly does this IP issue manifest itself? What are the benefits and drawbacks involved? Is IPR really as important as it is thought to be?

In preparation of this study 10 designer-entrepreneurs, who developed their business upon exit from the RCA, have been interviewed in relation to their inventions, their IP strategies and their views on IP in general. All of the designer inventors have been dealing with comparable sets of circumstances and 8 out of 10 have filed for one or several patents. Curiously all of the 8 alumni who hold patents stated that it was a prerequisite to be able to enter an incubation scheme such as Design London or InnovationRCA, or to seek equity investment. At the same time none of the interviewees have expressed any confidence in their IPR, should they need to defend it, and all of them find the financial burden hard to bear for a start-up venture. Patent portfolios vary in size, partly dependent on the development stage. Some ventures have filed only nationally, others internationally.

Amongst the eleven innovations, the only businesses without patents are Yossarian Lives!, a digital search engine, which does not qualify for patenting in Europe, and Squease, a pressure vest designed for autistic users. Squease let their patent lapse shortly after filing because the technology was still under development. The team decided to build on a first-mover advantage instead. The team behind Yossarian Lives! built their IP strategy around secrecy.

The main reason why designers opt for patents is their assumption that patenting is a requirement to secure angel investment. Conversations with angel investors from the London Business Angel Network have confirmed that angel investors share the interest in patents, because they see it as an indicator for innovativeness, and as a way to mitigate the risk of infringing third party IP. However, they also share the designer-entrepreneurs' reservations about the enforceability. The high uptake in patenting paired with the low confidence constitutes a paradox. The question is whether or not changes in the legislation can counteract this dilemma.

Case studies

In line with the fact that patent serves to protect the technical function of a product, and the design right its shape and form, we can differentiate between the technology aspect of a novelty and the (visual) design, which is also referred to as product language at times. Instead of discussing each of the 10 ventures shown in Figure 1 (note that Romulus and KwickScreen are managed by the same team) in great detail, we look at some of them as examples so that we can compare the founders' emphasis on sales, design and technology development.

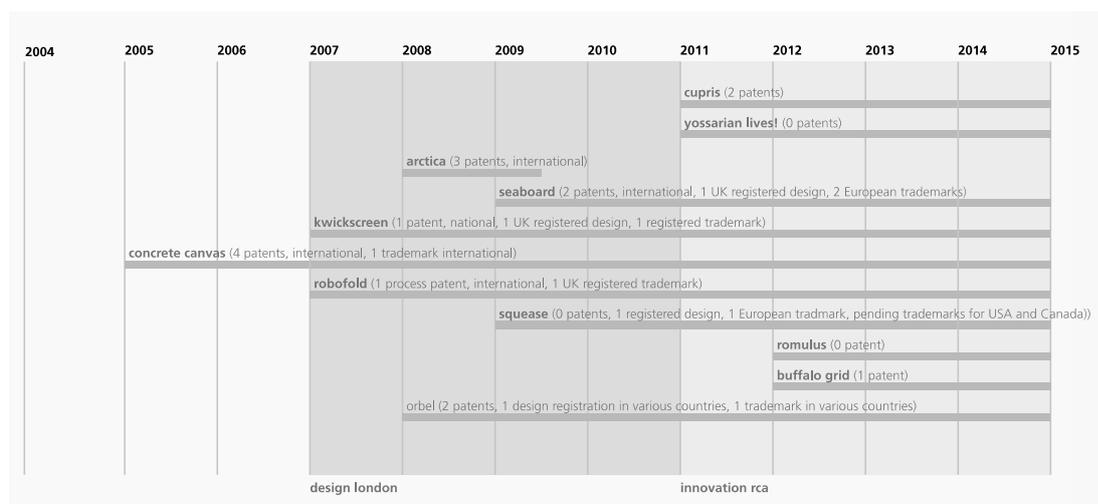


Figure 1: Incubator timeline

KwickScreen

KwickScreen is a retractable divider screen aimed at use in hospitals. The company behind the novelty shown in Figure 2 holds both a UK patent and a registered design, but care very little about either of the two. Their registered trademark weighs higher. The team focused on sales very early-on, and thus established market credentials faster than most of their peers. The company benefits from exclusive access to one particular fabric, the so-called RolaTube technology, that is vital to make their product work. They sell their expandable mobile divider screen directly to hospitals. Getting the product to work as well as building and managing their trade contacts, led this company to success. The two founders, Michael Korn and Denis Anscorb, who are now working on the first redesign of their product, employ 5 people and the business grows by around 100% each year. The venture's sales focus has led to the development of a bespoke customer relationship management system called Romulus, which provides an additional revenue stream because it could be licensed to some of their business contacts. KwickScreen set their priorities early. The focus on sales was prominent from the start. The technology was a means to an end, and design could be adjusted later. Focusing on sales as opposed to design or vice versa, is not a question of right or wrong, it is a question of confidently pursuing one's chosen avenue.



Figure 2: KwickScreen (Image: Courtesy of Korn Wall Ltd)

Squease

Squease is an inflatable pressure vest that can be inflated to provide the person wearing it with a sense of comfort (Figure 3). This is particularly useful for autistic people, who can suffer from anxiety in crowded environments. The team behind Squease started off with IP, but realised that their product required still a lot of development. This led to weaknesses in the patent, although having a patent pending helped to attract angel investors nonetheless. But investing time, energy and money in a weak patent was of limited benefit to the company's prospects according to Sheraz Arif, one of the company founders. The market for devices that provide autistic people with a sense of comfort and security in busy public environments was almost non-existent in the beginning. With limited competition in the field and in agreement with their investors, the team behind Squease decided to drop their patent, and to focus on developing credentials for their product through client relations, and a licensing agreement with a distributor in Australia. Squease shifted their priorities from IPR to sales. Keeping a critical eye on unexpected changes in circumstances, and the ability to adjust is important.



Figure 3: Squease pressure vest (Image: Courtesy of Squease Ltd)

Arctica

For Arctica, an environment friendly cooling system (Figure 4), the patent-route proved vital. Arctica uses a thermal battery to store the low temperature through freezing a phase-change material in the course of the night, which allows to absorb the warmth of the air

indoors during the following day. Running costs are very low, as are the costs involved in product servicing and maintenance. The inventors and original team members, Karina Torlei, William Penfold, Daniel Becerra and Mathew Holloway, had 3 different patents to secure exclusive access to the technology, which provided an alternative to conventional air conditioning units. The venture's growth prospects were hindered through the fact that the market was controlled by large incumbents who have exclusive relations with property developers. Etching their way into this tightly controlled market was impossible. The team managed to establish proof of market only through focusing on period properties, which cannot be fitted with air con in the UK due to existing regulations. Having found a way to trade their technology in a niche market, Arctica could be sold to Monodraught Limited, one of the key players in the industry.



Figure 4: Arctica cooling system (Image: Courtesy of Royal College of Art)

Whereas Squease focused on sales, Arctica concentrated on IPR. What to focus on most and foremost depends on the nature of the relevant product and the industry it is aimed at. Tightly controlled market environments require a higher focus on IPR than emerging markets or niche markets.

Concrete Canvas

Concrete Canvas is the oldest initiative amongst the RCA spinouts. Peter Brewin and Will Crawford invented a concrete shelter aimed at military use and at use for disaster zones. However, despite a trial with the military, the team did not manage to secure lasting business relations here. So they shifted their focus to the material, for which a separate patent had been filed in 2006, two years after the concrete shelter had been patented. All in all Concrete Canvas holds 4 patents, 40 including international filings, and trade their inventions worldwide. Their main income stream relates to the use of Concrete Canvas for lining ditches, for slope protection as seen in Figure 5, and for bund lining protection around petrochemical tanks. However, new areas are being discovered in collaboration with people who seek to acquire the material for untried applications. So Concrete Canvas rely on working relationships as much as on patents. Design rights became secondary, once the focus had shifted from the object to the material. So here was a strong emphasis on patents at the outset.



Figure 5: Concrete Canvas applied to slope protection (Image: Courtesy of Concrete Canvas Ltd)

None of the businesses mentioned above have prioritised design rights. Some pursued them in combination with patents. An overemphasis on patents shifts the focus away from the visual design. However the latter can be a big selling point. The product language matters, in particular in retail markets. Ultimately the development of all 3 aspects, product language, technology, and sales need considering, although the designer-entrepreneur's focus of attention may shift from one to another at certain times. The above examples are hoped to alert designer-entrepreneurs towards the need of establishing a focus of attention and to foster a systematic approach to navigating through these business development needs.

What has been neglected so far is the need for the IP strategy to be aligned with the funding strategy. Whilst delaying the patent may limit the interest from investors, filing early requires funding in the first instance, and it entails other disadvantages. We can hypothesise that focusing on design rights such as registered designs / design patents as opposed to technology developments and patents during the early stages, may provide a relief in the early stages because design rights are cheaper and easier for the designer to secure. Rather than considering patents as a necessity from the outset, designer-entrepreneurs should be encouraged to contemplate what exactly it is that strengthens their business proposition.

Design innovation strategies and IP

A designer-entrepreneur must understand where and how to prioritise various IP protection methods, and how to shift emphasis over time in accordance to the business needs. To summarise the most basic mechanisms we can distinguish between formal IP (such as patents and registered designs), secrecy, and sales focus (first-mover advantage). Informal IP provide limited benefit for the aspiring designer-entrepreneur, because these rights are difficult and too expensive to enforce. They are most common in fast-moving industries such as film and TV, gaming, fashion etc. NDAs and confidentiality agreements connect secrecy with formal IP. But due to the difficulty for a micro-scale start-up to enforce such rights, we subsume such arrangements in secrecy. Brand values grow only over time, and although it can be protected with IP such as trademarks, such as trademarks, the word brand value is used as a summative term in this study, and it is treated as a separate asset from formal IP.

The case studies conducted to date suggest that those firms, who opt for an early patent, enter markets later than those who neglect the patenting option in the beginning in favour of a sales-driven strategy. Formal IP is time-consuming and costly to establish. So the designer-entrepreneur needs to decide very early to what extent product developments are worth decelerating in pursuit of patents.

If we look at formal IP, sales orientation, secrecy, and brand value as the four main corner stones of a start-up's appropriability regime, then we can envisage a model in the shape of a time line, based on which the deployment of these different mechanisms can be mapped out. In line with the differentiation between patents and design rights, we then want to split IP into patents / technology and design rights / product language. We end up with the following time-lines:

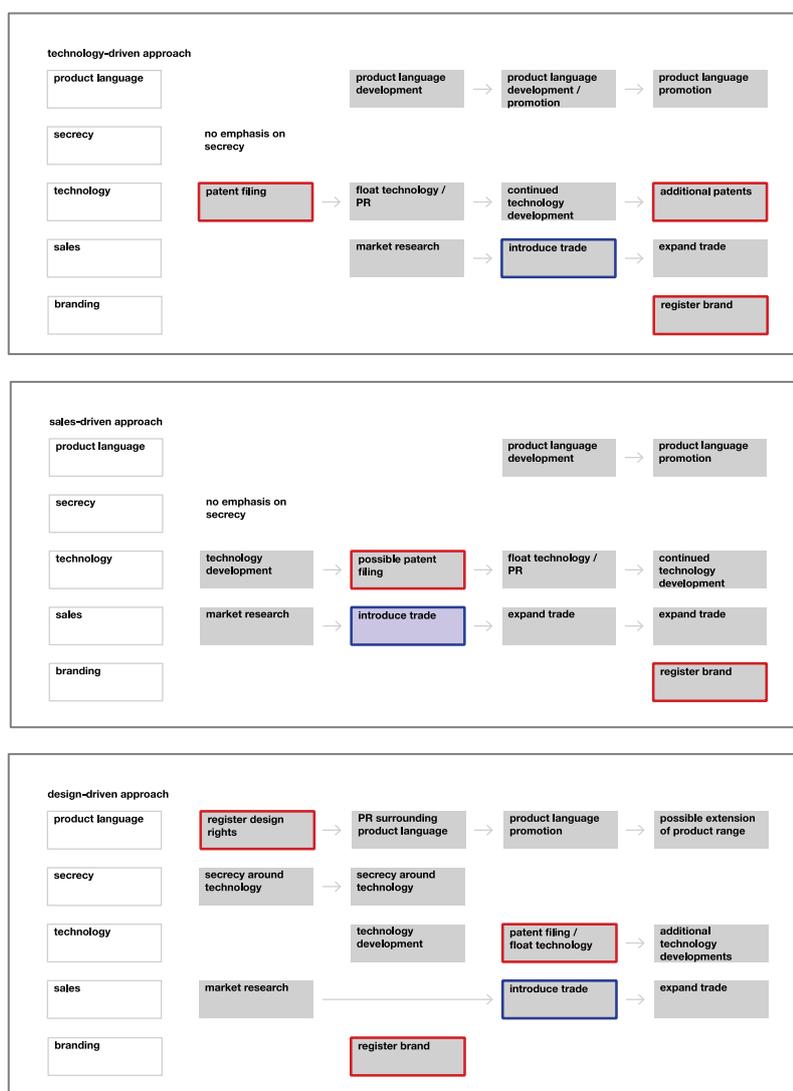


Figure 6: Possible development and protection strategies

The 3 schematic simplifications above (Figure 6) illustrate how the fledging phase may roughly pan out for a start-up. The question is: If we put branding to one side, and assume

that one can only pursue 3 of the remaining 4 development aspects at any given time, how would we map out the process? If change is incremental, one may be drawn towards a sales-driven approach. If it is a radically disruptive innovation, then one of the other two options might be preferable. The technology-driven approach is the one that resembles most of the RCA case studies. KwickScreen is closer to the sales-driven route, as is Squease. None of the ventures went through the 3rd route, which may be due to the way in which the incubatees were taught during their studies and coached during the incubation phase. Within the flow charts, the steps connected to formal IP are highlighted in red.

The Haberman case

Mandy Haberman is an established designer-entrepreneur, but went through the entire process of proprietary business development.



Figure 7: Haberman Feeder



Figure 8: AnywayUp Cup Beaker

(Images: Courtesy of Haberman Products Limited)

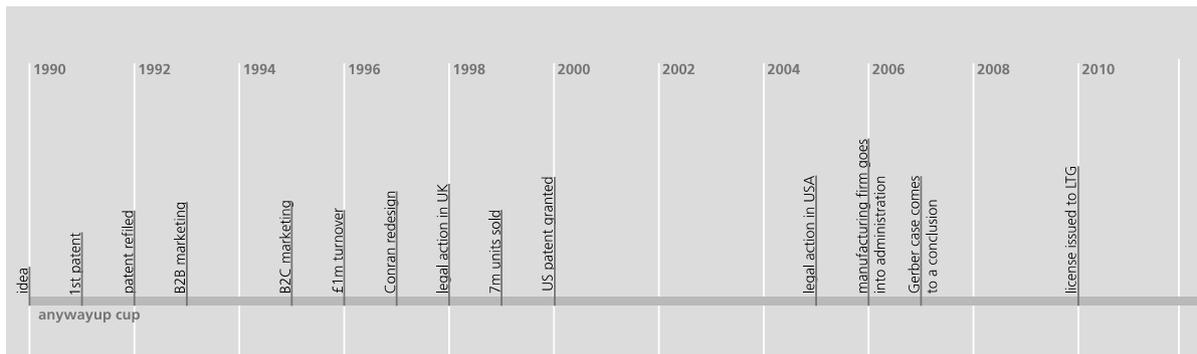


Figure 9: AnywayUp Cup timeline

Mandy Haberman has invented a number of products in the field of childcare and nutrition. But we are focusing on the early stages of an entrepreneurial design venture, and with regards to this, two of Haberman's inventions stand out: The Haberman Feeder (Figure 7) and the AnywayUp cup (Figure 8). In 1984 Haberman patented the first product, a baby cup for children with feeding problems. Initially she filed the patent herself, but soon realised that she would better use an attorney. She re-filed within a year. The development of the Haberman Feeder was funded through £20K worth of grants which Haberman had secured in the course of a 4-year period. Eventually the device was produced, marketed and distributed from home directly to hospitals and parents in need. Haberman had failed to secure a licensing or distribution agreement. Her market was too much of a niche, too small to attract the interest of large incumbents.

The situation was different with her second invention, the patent for which was filed in 1992 (see timeline in Figure 9). The AnywayUp cup was the first reliable non-spill baby cup in the world, using a slit-valve to keep the liquid secure inside. Haberman presented the product to 18 incumbents under NDA, but secured no contracts. Together with a marketing team the inventor introduced the product during trade fairs in 1995 and secured almost instantly £10K worth advance orders. Using a bank loan rather than investment, Haberman started production and trade. Sales grew fast and much benefitted from a redesign by Sebastian Conran in 1997. But Haberman's invention had already been copied by Jackel International Limited, one of the 18 companies mentioned earlier. The case was taken to High Court and led to an injunction in 1996. Subsequently various other infringements were successfully challenged in Holland. Last, but not least, Haberman had to take legal action against two companies in the USA, where her licensee refused to take action on her behalf. The results were mixed here. Haberman succeeded to take action against Playtex, who settled out of court. However, her lawsuit against Gerber proved her patent valid but not infringed. An injunction could not be issued here. With her patent proven valid, Haberman found herself lucky in that the outcome attracted new licensing deals in the US. With a cap in legal fees at £300K due to a contingency arrangement with her lawyers, her losses were mitigated. This appears like a painful but successful journey. In an interview Haberman admits to one major mistake she has made: The AnywayUp cup was filed twice, in 1991 and in 1992. Both times an attorney had been used. Haberman decided not to proceed with her first application due to

financial reasons. Between both filing dates the Richard Belanger had filed a patent application for a baby cup with a different kind of valve in the US. Both the Belanger patent and Haberman's patent from 1992 are valid. But due to the prior art created by Belanger, Haberman lost a huge amount of market share. 'It is true that I did extraordinarily well from the cup, way better than I ever dreamed. However, if I had proceeded with my earliest patent application, rather than abandoning that and refiling a year later, my patent would have been worth significantly more.' (Haberman 2014)

Haberman could rely on a bank loan to get started, something that is thought to be impossible nowadays. Her case suggests that patents are vital to the success of the independent designer entrepreneur, even if one does not need investment. The threat of being copied is real, but only once proof of market is established. Fund raising ambitions aside, IP seems of little benefit if one is not ready to enforce it in court. We can also learn from Haberman's case that the product language, i.e. the design that goes beyond the technical functionality, matters, at least in the retail sector. The Conran redesigns of the AnywayUp cup led to a significant increase in sales. Now that Haberman has a name to herself, she holds no less than 8 registered trademarks with OHIM. More recently Haberman has added to her product portfolio the Suckle Feeder (Figure 10), an improved baby feeding device, the Anyware range of child-safe kitchen ware, and the Glugs, a set of animal characters to be used to teach children healthy eating through story telling. Neither the Anyware range and the Glugs benefit from any kind of technological innovation, which again is an indication that design in terms of a product language matters, in particular if you can attach a brand value to it. The brand connects the product with the inventor and the firm.



Figure 10: Suckle Feeder

Haberman's case proves that the threat of imitation is real, and start-ups are not perfectly safe from harm. What becomes also clear is that the significance of IP does not become less critical over time, its value changes. In the beginning it may seem a necessary burden for acquiring equity investment. When trade turns profitable, funds become gradually available to invest in lawsuits, if required. IP can be used as an effective defence mechanism to grow and sustain market share. Once the venture is established, IP can be connected with brand values, and be used to signal innovativeness and market control. So the relevant problems and benefits in conjunction with IP change as entrepreneurs enter the next stage of the

business development. To begin with, time and money are the key concerns in relation to IPR, along with worries about the affordability of litigation. As the business development progresses, the primary concern is market share, potential competition and imitation. Once established, the designer entrepreneur must focus on the expansion of the IP portfolio, and on re-innovating.

Changes to the UK IP bill

The Intellectual Property Act 2014 introduces a new legislation in the UK, which is coming into effect in the course of 2015. Copyright and trademark infringement have already been treated as criminal offence in the past, whereas the infringement of Registered Designs, i.e. the formal protection of two-dimensional designs or surface patterns, and unregistered design rights, i.e. the right on the original design of a three-dimensional shape, has not. Nor has the infringement of patents. The proposed changes to the UK IP bill are set to turn the infringement of registered designs into a criminal offence. Infringement of patents and unregistered design rights will remain a subject of civil law, much to the dismay of some IP advocates. The difference lies in the liability, as well as the fact that a criminal offence can entail custodial sentences. This gives rise to the question whether or not registered designs are due to become more attractive means of IP protection than patents for start-ups. This in turn could mean that design disciplines other than product and engineering will be better suited for the entrepreneurial route.

According to the revised legislation a unitary patent will be introduced within Europe. The rules of this ‘will be the same in every country and you will be able to challenge unitary patents and European patents in one action at the Unified Patent Court. This will be cheaper and easier than fighting your case in the courts of each country where the patent is valid.’ (IPO, 2013d) A unitary patent application covering 25 EU member states is hoped to reduce translation costs from some £20,000 to £600, and save time and effort. A unified patent court in London will serve all unitary patent infringement, and a patent opinion service provides out-of-court advice on potential infringement matters for no more than £200. The changes to design rights are no less drastic, as explained above. However, it has to be said that infringement of registered design rights are only to be treated as a criminal offence if the infringement happens intentionally, and that may be rather difficult to prove. A design rights opinions service provided by the IPO will be aimed at helping businesses to resolve design disputes without litigation. The costs involved in using this service equate to those needed for the patent opinions service.

Whilst many designers will argue that the proposed changes do not go far enough, the IPO expresses confidence that making the infringement of registered designs ‘A criminal offence will help create a coherent approach to the protection of intellectual property rights in the UK. [...] As a result of this increased confidence design registration could become a more attractive proposition to creators.’ (IPO, 2013) On-going discussions surrounding the current changes in the IP bill suggest that the registered design is about to be strengthened to a much

higher degree than the patent. Whether or not a registered design can ease the way into a proprietary design business development depends on numerous other factors. The surrounding issues such as complementary assets, team building and funding must not be neglected. The benefit of focusing on a design registration as opposed to a patent at the outset lies in the reduced cost and time that is needed to obtain protection. So it allows the design entrepreneur to invest significantly more time and money into the development of other aspects, business relations and the innovation itself included.

A Comparison between Patents and Registered Designs

When discussing “The choice between formal and informal intellectual property” Brownyn et al. make no distinction between registered designs and patents, nor does Teece when introducing us to IPR in conjunction with appropriability regimes. It may be due to the fact that the US equivalent to the European design registration is a so-called design patent and the arguments are meant to encompass both patent variants, the design patent and the utility patent. A more likely reason is pointed out by Rebecca Thushnet from Georgetown University Law Center, who suggests that ‘The law’s traditional bias against, even fear of, the visual may help explain why design patents have been of less interest to many intellectual property scholars than other bodies of IP law.’ (Tushnet, 2012, p.409) To establish how much of a difference there is between utility patents and design registrations/design patents, we shall first look at the formal requirements for obtaining either.

Costs

Whereas filing a patent costs several thousand pounds and takes several years to reach approval, a design registration takes a couple of weeks, months at the most, and costs only a few hundred, even if filed through Office for Harmonization in the Internal Market (OHIM) across Europe. The US equivalent of the latter, the design patent, costs more, around \$1,500 in total, and it takes longer, around 12-18 months, which is still less than the time required to obtain a utility patent. As opposed to the European design registration, the US design patent does not require any renewal applications, which somewhat justifies its higher costs. But its lifespan is limited to 14 years, which is 11 years less than that of a European design registration, and 6 years less than that of a utility patent. The fact that the design patent is examined in terms of novelty, gives it more credibility than one would attribute to the registered design.

Considering that processing time and costs seemed the biggest problems associated with utility patents, one might be surprised to not see a greater emphasis on design registrations / design patents in conjunction with design-led start-ups. May this have to do with the ‘bias against, even fear of, the visual’ mentioned above? Do entrepreneurs and angel investors share this fear? And, if so, where does this fear come from?

Robustness

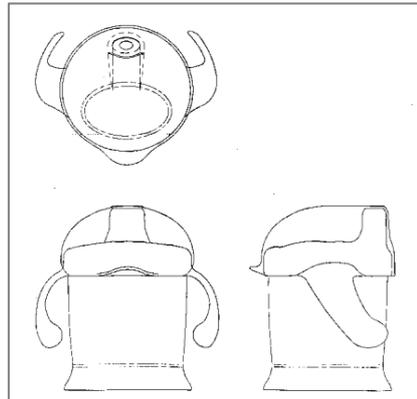


Figure 11: 3D trademark by Haberman

Views on the strength of design registrations and design patents vary considerably. Adam Sudcliffe, one of the designer-entrepreneurs interviewed in conjunction with this study, thinks highly of them, but suggests using them during the later stages of a venture development rather than earlier-on. Mandy Haberman, inventor of the so-called AnywayUp cup, has little faith in registered designs, so little in fact that she filed a 3D trademark for her Smiley Cup design instead of registering the design (Figure 11). Interestingly she ‘filed the Design Patent [in the US] as a strategic measure, to obtain a granted right faster than could be achieved by our patent application’. She further explains that ‘The US patenting process can take many years and it is likely that we will be launching our product there before our patent is granted.’ (Haberman, 2014) Utility patents are probabilistic rights, which means they are only proven once confirmed in court. One could argue that design patents and registered designs are equally, if not more probabilistic as are utility patents. Tushnet explains that ‘the ordinary observer test makes design patent infringement findings harder to review and analyze; as gestalts, they are difficult to dissect’ (Tushnet, 2012, p.417). In an interview Haberman stated that she had seen a cup similar in design to her “Smiley Cup” during a trade fair, but decided not to challenge it in court because minor differences would have limited her chances to succeed (Haberman, 2014). How similar a competing design must be for it to be litigated without risk is difficult to tell.

Conclusions

Despite the costs involved, many designer-entrepreneurs perceive patents as a necessity for obtaining equity funding. Given the current circumstances this does not come as a surprise. However, other means of protection remain neglected. The way in which different forms of IP can be effectively combined and how their filing is best timed is not sufficiently understood. In particular now that we are witnessing significant changes to the UK IP bill, the relevance of registered design rights needs to be revisited.

The registered design is less reliable a means of protection than a patent, because it is not examined for novelty. The benefit is its pace and low costs. With renewal fees, the EU

registered design is no cheaper than the US design patent. The latter is examined upon application. A point could be made that the US design patent is a better concept than the registered design in Europe. Even the terminology, the use of the word patent, might entice investors to develop more faith in formally protected design rights.

A lot of novelties in different fields of design are likely to remain neglected unless design rights are given more prominence. The spectrum of possible innovations is much greater than the portfolio of InnovationRCA currently suggests, for example. Could the replacement of registered designs with design patents trigger a culture shift in the field of design-led start-ups? Or do we need a culture shift in the first place, to sustain realistic hopes for a better protection system? The changes in the UK legislation are unlikely to solve all relevant problems.

In addition to changes in the IP law, a better understanding of typical design business development cycles could lead to a more effective use of IP. To achieve this, IP in terms of patent filing must not be reduced to a tick box exercise. Instead, IP strategies must be devised in response to the predicted development route of a design-led start-up. The examinations above suggest that starting out with patents and adding trademarks and design registrations later is currently the preferred route, because equity investment is usually required to succeed in surviving the very early stage. The approach to securing IP could change, provided that faith in the value of product languages grows amongst entrepreneurs and investors. What will be required in addition to new laws and regulations is a culture shift. Conran's redesign of the AnywayUp cup is only one example that evidences the degree to which attractive design propositions are valued by customers, and how this benefits sales. If we can get product languages recognised as effective tools for preparing products for market, if we can establish means to defend those product languages against competitors, then we can emphasise the visual aspect of design in the early stages. This in turn will help to reduce initial costs and time spent on IP and thus speed up development processes.

References

- Clarysse, Bart, Kiefer, Sabrina (2011). *The Smart Entrepreneur: How to Build for a Successful Business*, London: Elliott & Thompson
- Cohen, Wesley, Nelson, Richard, Walsh, John (2000). *Protecting their Intellectual Assets: Appropriability Conditions and why U.S. Manufacturing Firm Patent (or not)*, Cambridge, USA: National Bureau of Economic Research
- Cole, P.G. (2005). *The Anywayup Cup*, London: The CIPA Journal
- Cox, George (2005). *Cox Review of Creativity in Business: building on the UK's strengths*, London: HM Treasury (available through The National Archives)
- Dodgson, Mark, Gann, David, Salter, Ammon (2005). *Think, Play, Do: Technology, Innovation, and Organization*, Oxford: Oxford University Press
- Farooqui, Shikeb, Goodridge, Peter, Haskel, Jonathan (2011). *The Role of Intellectual Property Rights in the UK Market Sector*, London: Intellectual Property Office

- Gowers, Andrew (2006). *The Gowers Review of Intellectual Property*, London: HM Treasury
- Farooqui, Shikeb, Goodridge, Peter, Haskel, Jonathan (2011). *The Role of Intellectual Property Rights in the UK Market Sector*, London: Intellectual Property Office
- Greenhalgh, Christine, Rogers, Mark (2010). *Innovation, Intellectual Property, and Economic Growth*, New Jersey, USA: Princeton University Press
- Haberman, Mandy, Hill, Roland (2003). *Patent enforcement for SMEs and lone inventors—A system failure*, published by: www.mandyhaberman.com
- Haberman, Mandy (2004). *Time to take the plunge, Patent insurance: the need to grow the risk pool*, London: Informa Law
- Haberman, Mandy (2008). *Riding the American Rocket, Is it possible for a private UK inventor to enforce their IP rights in the USA?* London: Informa Law, IP Supplement, World Extra 2008
- Hall, Bronwyn, Helmers, Christian, Rogers, Mark, Sena, Vania (2013). *The choice between formal and informal intellectual property: a review*, Berkeley: University of California at Berkeley
- Helmers, Christian, McDonagh, Luke (2012). *Patent Litigation in the UK*, London: London School of Economics and Political Science
- Henkel, Joachim, Jell, Florian (2009). *Alternative Motives to file for Patents: Profiting from Pendency and Publication*, London: Center for Economic Policy Research (CEPR)
- Hurmelinna-Laukkanen, Pia, Puumalainen, Kaisu (2007). *Nature and dynamics of appropriability: strategies for appropriating returns on innovation*, in: *R&D Management*, Volume 37, Issue 2, pages 95–112, March 2007
- Levin, Richard, et al (1987). *Appropriating the Returns from Industrial Research and Development*, in: *Brookings Papers on Economic Activity*, Vol. 1987, No. 3, Special Issue On Microeconomics, pp. 783-831, Washington, DC, USA: Brookings Institution Press
- Murtha, Thomas P., Lenway, Stephanie Ann, Hart, Jeffrey A. (2004). *Managing New Industry Creation: Global Knowledge Formation and Entrepreneurship in High Technology*, in: *The Academy of Management Review*, Vol. 29, No. 2, pp. 303-306, New York: Academy of Management
- Pitts, Beth (2012). *Mandy Haberman, Inventor & Founder Haberman Products: I risked my house for my patent rights*, Amsterdam: The Next Woman Ltd.
- Teece, David J. (1986). *Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy*, in: Teece, David J. (1988): *Strategy, technology and public policy: the selected papers of David J. Teece*, Northampton: Edward Elgar Publishing
- The Big Innovation Centre (2012). *UK design as a global industry: International trade and intellectual property*, Newport: Intellectual Property Office
- Tushnet, Rebecca (2012). *The Eye Alone Is the Judge: Images and Design Patents*, New Jersey, Washington: Georgetown University Law Center

Online References

- Cole, P. G. (2005). *The Anywayup Cup*, in: *The CIPA Journal*, October 2005, London: The Chartered Institute of Patent Attorneys, source: <http://www.lucas-uk.com/The%20Anywayup%20Cup%20-%20Paul%20Cole.pdf> (accessed: 11/03/2014)
- Haberman, Mandy: <http://www.mandyhaberman.com/intellectual-property> (accessed: 11/03/2014)
- Insley, Jill (2012). *A working life: the inventor*; Source: <http://www.theguardian.com/money/2012/jun/08/a-working-life-the-inventor> (accessed: 17/03/12)

- Intellectual Property Advisory Committee (2013). The Enforcement of patent rights, National Archives, http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/contra_vision_ltd_336_p4_163kb.pdf (accessed: 22/05/2014)
- Intellectual Property Office (2010). How to Apply for a Registered Community Design, <http://www.ipo.gov.uk/applyingcomdes.pdf> (accessed: 26/03/2014)
- Intellectual Property Office (2013a). Intellectual Property Bill, Updated Impact Assessment for a criminal offence for the copying of a UK or EU Registered Design; source: <http://www.ipo.gov.uk/consult-ia-bis0376-revised.pdf> (accessed: 31/03/2014)
- Intellectual Property Office (2013b). Intellectual Property Act 2014, <http://www.ipo.gov.uk/types/hargreaves/hargreaves-ipbill.htm> (accessed: 31/03/2014)
- Intellectual Property Office (2013c). Introduce a criminal offence for the deliberate infringement of a UK or EU Registered Design, Updated Impact Assessment for a criminal offence for the copying of a UK or EU, IA No: BIS0376, <http://www.parliament.uk/documents/impact-assessments/IA13-16M.pdf> (accessed: 30/03/2014)
- Intellectual Property Office (2013d). What does the Intellectual Property Bill mean for you? Patents Edition, <http://www.ipo.gov.uk/ipbill-patents.pdf> (accessed: 19/04/2014)
- Intellectual Property Office (2013e). Intellectual property bill - Overview by theme, www.ipo.gov.uk/ipbill-overview.pdf (accessed: 19/04/2014)
- James Dyson Award (accessed: 10/09/2013). <http://www.jamesdysonaward.org/Projects/Project.aspx?ID=2006>
- Richardson, Mark (2014). Intellectual Property Bill – Amendments Proposed to Clause 13, <http://ipcopy.wordpress.com/2014/01/22/intellectual-property-bill-amendments-proposed-to-clause-13/>, (accessed: 02/04/2014)
- United States Trademark and Patents Office. A Guide to Filing A Design Patent Application, http://www.uspto.gov/web/offices/com/iip/pdf/brochure_05.pdf (accessed: 29/03/2014)

Interviews, conversations and follow-up correspondences

- Interview with Paul Thomas, co-founder of Cupris (06/11/2012)
- Interview with J. Paul Neeley, co-founder of Yossarian Lives! (08/11/2012)
- Interview with Thomas Hoehn from Imperial College Business School (20/11/2012)
- Interview with Mathew Holloway, co-founder of Arctica (07/12/2012)
- Interview with Roland Lamb from Roli Labs (18/01/2013)
- Email exchange with Mathew Holloway from Arctica (15/03/2013)
- Conversation with Nick Coutts from Innovation RCA (16/05/2013)
- Conversation with Txaso Del Palacio from University College London (23/05/2013)
- Conversation with Kristien De Wolf from Imperial College Business School (24/05/2013)
- Interview with Peter Brewin, co-founder of Concrete Canvas (18/06/2013)
- Interview with Gregory Ebbs, founder of Robofold (04/07/13)
- Interview with Sheraz Arif, co-founder of Squease (04/07/13)
- Interview with Bradley Hardiman, Investment Manager at Cambridge Enterprise (28/11/13)
- Interview with Damon Millar, co-founder of Buffalo Grid (18/12/13)
- Interview with Adam Sudcliffe, founder of Orbel (18/12/13)

Interview with Sebastian Conran, Conran Associates (21/02/14)

Interview with Julian Wilkins, from Blue Pencil Media Limited (18/03/14)

Interview with Mandy Haberman, inventor of the AnywayUp cup (07/05/14)

Email exchange with Mandy Haberman, inventor of the AnywayUp cup (21/05/14)

Author Biographies

Matthias Hillner

Matthias Hillner is a Senior Lecturer for BA Hons Graphic Design and Illustration at the University of Hertfordshire, and Visiting Lecturer at the Royal College of Art, where he pursues a PhD in IPR and Innovation Management. He is also External Examiner for MA Contemporary Typographic Media at London College of Communication.

In 2009 he spear-headed a multidisciplinary research team in pursuit of the development of a novel touch screen interface technology. Following the receipt of an Innovation Voucher from the East of England Development Agency in 2010, he filed for a patent in the UK. The experience with generating and marketing proprietary intangible assets led to his study into IP management for design-led businesses, which he started in 2012.

In recent years Hillner has published a series of papers on IPR, and he presented at international design conferences including the International Congress of International Association of Societies of Design Research (IASDR), Tokyo, in 2013, the IDEMI 2013 (3rd Conference on Integration of Design, Engineering & Management for Innovation) in Porto, and the Academic Design Management Conference Design organised by the Design Management Institute in London in 2014. Two papers on IPR topics, one of which he co-authored with Professor Ruth Soetendorp, Head of the Intellectual Property Awareness Network in the UK, will be presented at the 17th International Conference on Engineering and product Design Education in Loughborough in September 2015.