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DESIGN, KNOWLEDGE EXCHANGE AND INTELLECTUAL PROPERTY.

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Abstract

The paper looks at the relationship between Design, Designers and IP (Intellectual Property). There is almost no use of IP within the design community. The preferred business model has always been first to market. This paper explores aspects of IP in relation to Design:

- Is creating IP collaboratively with design as a core element, an effective model for Knowledge Exchange in business?
- Is this a better strategy for design driven IP than first to market?
- Can this deliver economic benefit and sustained development in Scottish businesses?
- Should we adopt the Californian model of university research IP transfer to business?

In addition there is a scale issue with design businesses, usually below 10 employees, and many function as micro-businesses or lone traders. Even where there are huge corporates (such as Apple and Dyson) defending their IP through the courts has proven to be both expensive and something of a pyrric victory. Where judgments are in support of the legal claim they have seldom in reality resulted in any behavioral change. This raises a whole series of issues:

- How does a business engage with design to build IP?
- Do small companies have the resources and knowledge to successfully challenge IP breaches?
- How does a research project unpack these issues?
- Can applying research build new models of engagement with design that gives value to IP at the start of a product journey?

These questions are being posed, and answers sought, by *Design in Action* an Arts and Humanities Knowledge Exchange hub for the creative industries. This issue has been little explored with literature reviews revealing a dearth of papers in the area. The knowledge exchange hub looking specifically at IP for the creative industries has also found a lack of literature in the field. What little information is available in the public domain are reports of litigation; yet even these fail to indicate how and if these challenges can be resolved.

Is creating IP collaboratively with design as a core element, an effective model for Knowledge Exchange in business? Is this a better strategy for design driven IP than first to market? Can this deliver economic benefit and sustained development in Scottish businesses? Should we adopt the Californian model of university research IP transfer to business? How does a business engage with design to build IP? Do small companies have the resources and knowledge to successfully challenge IP breaches? How does a research project unpack these issues? Can applying research build new models of engagement with design that gives value to IP at the start of a product journey? These questions are being posed and answers sought by *Design in Action* an Arts and Humanities Knowledge Exchange hub for the creative industries.

Key Words: Design, IP, Knowledge Exchange, SMEs

Academic papers on ‘Design and IP’ are not evident, the authors have struggled to find any papers from which to draw citations. Given the dearth of literature within the field, the only evidence that is available is contemporaneous, in that it is based upon court cases reported in the press and on-line.

Design in Action, hub is composed of 27 individuals operating across Scotland, comprising 6 groups located at Robert Gordon University - Grays School of Art, St Andrews University - Institute for Capitalising on Creativity, Edinburgh University - Edinburgh College of Art, The Glasgow School of Art, Abertay University and the University of Dundee - Duncan of Jordanstone College of Art and Design, the lead institution. All HEIs operate under the same guidelines.

Design in Action (DiA) seeks to understand how ‘Design as a Strategy’ operates in practice to provide economic benefit. DiA infrastructure imbeds design at the heart of its processes, including: a co-creation innovation process called chiasma; “ideas at the point of creation”. Every chiasma team has a designer as a member, (funded by Creative Scotland)

Each funded team for prototype development includes a designer

All IP generated through the innovation process is owned by DiA and licensed back to participants to ensure all co-creators have a stake in the projects' successful commercialization.

Chiasma teams are invited to bid for a license agreement and prototype funding. Funding and support are conditional upon enabling DiA's research process, consisting of an evaluation of the entire chain from innovation to commercialization, to identify how design functions strategically; what skills are key to the co-creation innovation process. This will enable the articulation of the value of design as a strategy to communicate the value of design to new businesses.

Design and the market

Design and Designers have always relied on their ability to generate a multitude of ideas and to use these to be the first to market. Design's heritage is built upon this model of generating a market, by developing new concept products, which will hold primacy for a period by creating consumer desirability, through advertising and quality visuals. This market is typified by mid to high range goods, (not the designer elite market) whose products rely heavily upon using a market saturation technique with a quick turnover. The savvy designer also has "serial" products in the background already developed for manufacture. Once the market shows any signs of a downturn, these planned developments of either, an upgraded version or slightly different visual form are produced to enable the designer to extract maximum market value from every iteration. Keeping ahead of the competition, where novelty and uniqueness forms the designer's palette allows them to hold market domination for a period.

<http://time.com/jonathan-ive-apple-interview/>

This product market significantly weakened when "fake", "replicas" or "near copies" were produced in previously unseen timeframes, and at a quality that made them desirable to the consumer, who then shied away from the high cost of the designer led market. This production based on the "almost" factor and has continued to grow interrupting the products market. A "look-a-like" product was bought to market in effect it could not be construed as a direct copy and therefore a breach of IP. These products were produced at a reduced cost usually achieved through cheaper materials or poorer construction or manufacture. Thereby enabling a third party to mass-produce and optimise the value generated through the design process, whilst effectively and simultaneously destroying the market, as saturation was achieved. This also directed the mass production sector to use the copy as a product innovator rather than sourcing their own product identity, they relied on the design process but at a secondary level.

Ref: Dyson 2011. Apple Samsung 2011

<http://www.theverge.com/apple/2011/11/2/2533472/apple-vs-samsung>

Realising value from the market

This business model of the 1960's – 2000 was able to be sustained as production methods remained on the whole traditional, the rise of the digital economy means that manufacturing has become a less people intensive process; technology can now be used to produce items that traditionally were the subject of skilled labour. The pound shop culture has thrived in the recent recession, and exemplifies contemporary consumer habits, (TKMaxx, Aldi, Lidl increased market share) where mass produced goods at relatively high cost have now been remade and sold with minimal margins. With no innovation or research and development costs to consider, this method is being used to maintain market growth and sustain economies. The world has become a single trading environment.

Conran 2012, identified issues with the management of IP within a company base, and the resource intensive process of protecting and challenging IP breaches, "I would rather have 3% of gross revenue than 15% of a net royalty stream - protection of IP is hideously expensive and 15% of a royalty stream sounds meager".

Dyson 2011, has had similar experience in challenging this copycat behavior but took the expensive corporate route to resolution, "We had to put a private detective in their factory and take photos of them making the fans. Then we won the case and they were fined \$7,500 but they didn't pay the fine and they just carried on". Dyson is pursuing 20 design or patent cases around the world, many of them related to the distribution and sale of products made in China. The inventor did not put a figure on the amount of lost revenue but said the total was "quite a lot". The business has spent \$3m (£1.9m) on legal fees."

Nokia and Apple 2011, have been in a billion dollar IP tussle, as have other major technology players such as Microsoft. All of these cases have evolved around the effective merging of design and technology. Design is the common element in making a distinctive contribution to the products functionality and desirability. Wright 2008 states, 'There's too much stuff in the world'. Indeed, for leading global brands design is as much the product on sale as it is the development process and is the real source of value. Apple's Jony Ive: "We're keenly aware that when we develop and make something and bring it to market that it really does speak to a set of values. And what preoccupies us is that sense of care, and what our products will not speak to is a schedule, what our products will not speak to is trying to respond to some corporate or competitive agenda". Ive (2013)

So Apple is pursuing values over value. When pursuit of revenue via recourse to legal action has become almost redundant market share is protected by capture of consumer demand. Values become not just integral to the brand but are critical. We see that the attitudes to IP are influenced by brand strength and market security. So as a research project concerned with the broader application of design as a strategy for market success and how the application of these principles creates economic value efficiently, DiA has needed to understand how both our businesses and we work with IP.

Conran visiting California on a UK government trade mission (with David Willetts MP) to look at IP exploitation was convinced that UK universities still have a long way to go to get that IP engine firing on all cylinders. The new universities and science minister Greg Clark MP has retained responsibility for cities and regional growth, which has been interpreted as further evidence of the government's conviction that university research can be an engine of economic growth. It is undisputed that UK research is world leading, yet Silicon Valley is generally more successful at commercialising the ideas and inventions created in Californian universities into world-class enterprises. Why?

There is a consistent approach in California to the handling of intellectual property, copyrights and patents created or invented by students and researchers in academic institutions, and although Californian universities hold onto IP rights, they are obliged to make efforts to commercialise and protect them and, importantly, share 35% of the revenues with their inventor. It is not just about the IP rights, the team that created the technology are also expected to be instrumental in forming the company, so the people and the expertise are maintained in the enterprise. These companies can be very successful; start-ups from the University of California Berkeley alone raised more than \$1.3billion in private capital in the five years up to 2011.

The leading enterprises visited during the mission were started by teams who first connected in academic institutions like Stanford, Berkley or San Diego, and there were many references in their surprisingly open presentations to the lessons learned and inspiration received during their early years – as well as to information gleaned more recently from the academy. It was clear that they still had plenty of learning to be done after their formal education ended, but there does seem to be a very healthy on-going relationship between entrepreneurs and their alma mater in California that does not seem to be mirrored in the UK.

Many of these university spinoffs seem to thrive on cross-licensing their IP to each other, sharing and building off each other's ideas and research. There is a culture of getting ideas commercialised quickly by using

design thinking right from the market-scoping stage of the development process or value chain.

<http://www.ucop.edu/research-policy-analysis-coordination/policies-guidance/intellectual-property-ex/index.html>

There are no overall agreed protocols in the UK University sector for how they operate and implement their IP policies; the basis for the UK Universities IP agreements is the Lambert toolkit originally established in 2005. The guidelines were reviewed in June 2014 with the aim of providing the best advice on how to operate across sectors and ensure productive working relationships. The overall aims are to:

- Facilitate negotiations between potential collaborators
- Reduce the time and effort required to secure agreement
- Provide examples of best practice

The key elements of the Lambert agreements are:

- Ownership and rights to use the results of the project
- Financial and other contributions made by the commercial sponsor
- University's use of the results for academic purpose

The Auril handbook of intellectual property management is another guide for academic staff to help promote best practice in the management of IP including patents, trademarks design and copyright. These guides establish the basis principles for an IP policy but they are very much geared to STEM (science, technology, engineering and mathematics) subjects. They are predicated on working in partnership with large corporations, where knowledge transfer is the prevalent model for undertaking collaborative business development. These models have considerable deficits when working with Arts and Humanities businesses, particularly those operating as small SMEs/micro and lone traders, whose ability to strike deals based on a financial model up front is non-existent. These businesses require support in monetising and commercialising their IP, and the model of innovation further complicates DiA's own co-production model, entitled Chiasma.

Given the fluid nature of working with Arts and Humanities businesses DiA has had to build its business model and operational structures, (supported by the Arts and Humanities Research Council, Martin Brassell Inngot, University of Dundee's Research and Innovation team - John McKenzie, Ron Jenkins and Diane Taylor and the core DiA team). The construction of an IP policy and model is complex and evolving as the project itself evolves and matures. There is an inherent complexity in using IP as commercial value, as value is only accrued once the market place has been entered. The UK University systems for working with the

SME/micro/sole trader are under developed requiring a considerable shift in order to provide a realistic and viable set of processes.

Creating a model of balanced incentives

Divergent attitudes to IP can be significant barriers to participation in collaborative innovation processes, especially in models such as Chiasma where applications for places are sought publically and participants are meeting for the first time. Trust is a key component in long-term collaboration. Chiasma is a two and half day innovation process, there is minimal opportunity to build a depth of trust allowing barriers to be lowered, bringing a free exchange of knowledge and expertise. A well-balanced IP structure is needed as a substitute for familiarity and trust. DiA has developed an 'IP shelter'¹ where IP emerging from Chiasma in the form of business ideas are legally owned by DiA (in legal terms, the University of Dundee) but with an explicit commitment to offer licensing to participants who developed the idea. There are several benefits to this approach:

- There is clarity on the approach to background and foreground IP coming into Chiasma. Everyone is on a level playing field and understands their rights.
- Participants can have confidence that an institution with financial and legal clout (the University) will protect their interests in the event of other participants pursuing the idea themselves.
- DiA explicitly judges licensing applications on commercial viability. If the originators of the idea are best placed to commercialise the idea then they will be supported in doing so. This gives a necessary commercial discipline to the Chiasma process.
- There is a conflict resolution mechanism in the event that originating teams are dysfunctional or realize at the outset that they cannot work together long term. Competing applications can then be made and are evaluated on commercial grounds.
- There is also an incentive for DiA with a small claim of, typically, 5% of future revenue or profits or equity being negotiated as a means of replenishing the revenue costs of running the process.

Our own IP

To date the only IP registered formally on the part of DiA is a trademark name on the Chiasma innovation process. The vast majority of IP retained within DiA's business model, developed to facilitate the research and developed as its methodology, remains un-attributable and is not able to be registered. The only way forward for the project team is to publish

frequently on the project, to ensure that the IP developed is associated with the researchers of DiA team.

Chiasma evolved using a method of disruptive thinking and rapid ideation suitable for business engagement. DiA currently has three models and is continuing to develop the process, to fit a variety of circumstances, clients, calls and contexts. DiA's rationale is to build a cross cutting model of innovation positioning designer and the design process at its heart. DiA requires a business model that functions on all levels, practically for business, for the project, the university and for the longevity of the work.

Based on a royalty model, IP generated from Chiasma are logged in an IP bank, so that the copyright and know-how in them can be the subject of a licensing agreement. The aim is to enable participants from Chiasma the opportunity to develop the IP into a commercial venture, supported by seed-corn funding.

<http://designinaction.com/>

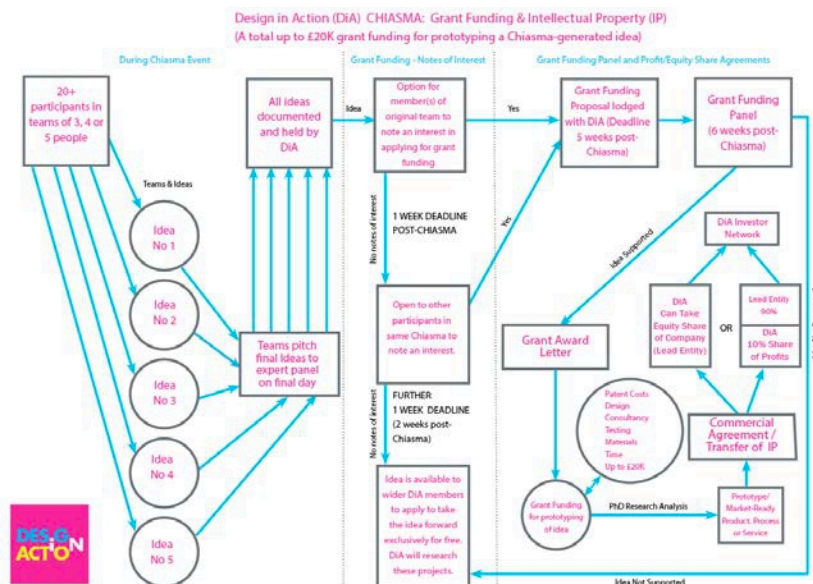


Figure 1: Design in Action (DiA CHIASMA: Grant Funding & Intellectual Property (IP))

The model has been developed to serve a number of purposes, including:

- Effective and open management of the IP resource
- Ensuring maximum exploitation potential
- Evaluating the role of design as a strategy
- Protection of IP
- Building a legacy model, post research funding

Whilst no element within itself is a unique approach, it is the combination of these elements into a form that allows their purpose and its articulation to function in delivering the outcomes needed for DiA's effective operation, longevity and research.

The business model has thrown up interesting opportunities and challenges that have to be resolved; however these issues do not deflect from the fact that participants in the process have had a successful outcome, delivered by DiA's team.

The silent process underpinning the whole theoretical proposition is about the power of design to trigger and build innovation into company thinking, this appears to have been accepted within the model without any objection. Chiasma did not overplay this requirement, DiA simply colour coded the design participants and informed all parties that each team had to include someone with this distinctive colour in their team. This ensured that design was strategically embedded in each team, this method exposed designers to unfamiliar issues and ways of working, as well as inducting all participants into the value of IP as a business tool, and building a knowledge exchange culture.

This positive start, and the requirement for all participants to sign both a confidentiality and IP agreement prior to engaging in the Chiasma process should have delivered the model. However at the panel presentation stage an idea was revealed on twitter and following Chiasma a blog was created revealing the IP. These incidents will require DiA to be more explicit about the nature of IP and confidentiality. The question arises is it a lack of understanding generally or somehow does using the virtual world as a tool not count in individuals thinking as a mechanism that can breach confidentiality?

The uptake of places amongst businesses, experts, and wild cards all external to the academic process has exceeded DiA's expectations. At June 2013, the second anniversary of the project, some 500 businesses had worked with the project.

DiA believes that its success with the SME community (over 3000 clients are registered with DiA) is the direct result of three elements:

- Firstly, the "scoping" process, where prior to any Chiasma call being launched a Co Investigator and a Post Doctoral Research Fellow have explored potential aspects of each sector. Mapping the sector through a close examination of the contemporaneous experience of business allowed the scoping team to establish territory for a focused business opportunity. The call for Chiasma was pitched to ensure that engagement would provide an outcome capable of meeting market need.

- Secondly, multidisciplinary working is now a proven method within academia, but for small and micro businesses this opportunity is rare if not outwith its abilities to construct. Chiasma is this opportunity for them to engage with the co-creation process, be exposed to world-class experts in the field and to engage with a disruptive thinking-model.
- Thirdly, the use of simple, non-academic language that businesses find accessible and helps to breakdown barriers with the university realm, allowing them access to the research and knowledge that otherwise would be inaccessible.

The academic community has not responded so positively to the chiasma process, although it has to the events programme, usually as the dominant interest. This suggests that it may be because there is currently little internal reward or recognition for academics to engage directly with the business community, and that KE between the two communities holds no academic currency. This behavior also indicates that IP that does not play a significant role within the Arts and Humanities academic community, (generally regarded as a tool of the sciences,) in that they do not explore the development of knowledge into the economy as a focus. Academics who have been asked to undertake a particular role have done so with willingness and enthusiasm. This is a conundrum that will take the project a further period of time to understand and resolve.

The intention is to follow the process of progress, from idea to prototype, and to understand how design functions as a strategy, using IP as the business value model.

Our first business was launched into the economy after a three-month period of development, and did so with extraordinary success. It used a monthly subscription model, and launched itself into the market place using Groupon vouchers (www.groupon.com). These sold out within 45 minutes, a second enlarged Groupon platform formed the core subscribers and enabled the business to build from a regular income base. From this the business went on to use crowd funding to raise capital for expansion, this again was successful, and within the period of 18months the business has an annual turnover of £2million. The business chose to own all of the IP and has used an equity model.

The project has a pipeline of businesses that will enter the economy over the next two-year period, no other business as yet has launched in a three-month period. The length of time from articulating the idea to the market ready stage is taking roughly 18months per business. The aspect that is the most problematic is the business model. Given that the ideas are the result of a co-created process, and many seem to have a community aspect,

or be in the digital product domain, the business models are as yet to fully evolve within the marketplace.

The preferred route for design and designers, indeed the small SME/Micro/lone practitioner is to use the tried and tested model where first to market is the most expedient route to the customer, IP with the exception of the first company to launch, has not played a predominant force within the business thinking.

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