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Awareness and Perception of Intellectual Property Rights and its processes in New Zealand –

The disconnect between innovation and commercialisation, a study based on the Students at Victoria University's School of Design

Submitted to: Dr David Stewart, Course Controller

Supervisor: Prof Stephen Cummings

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Author: Martina Hill, ID 300275764

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Executive Summary

In New Zealand intellectual property (IP) is seen as an economic driver, however in recent years patent applications have plateaued and design applications decreased in comparison to the previous years. A review of the New Zealand IP system suggested raising IP awareness through education.

Students studying at the School of Design at Victoria University create new IP on a daily basis; however currently the school plays no active role in providing IP information to its students. A survey conducted with media and industrial design students confirmed that students have only a basic understanding about IP rights and have not necessarily the knowledge or understanding on how to protect their IP.

Most of the time registering a patent requires external investment, disclosure of the IP to other parties as well as getting lawyers involved to ensure the process is followed appropriately. The research identified that there are two succinct parts to the IP protection process. The first is about making an informed decision about whether and how to protect the IP and the second part of actually taking actions to protect the IP. The first part is particularly important for students to decide if they want to continue with the second part, where patent attorneys need to get involved in particular for patent applications.

It is recommended that the School of Design lead an initiative with its stakeholders to raise not only awareness, but also understanding by making the first part of the IP protection process part of the overall design process and IP in general part of the curriculum. This will encourage students to think actively about IP rights. They will learn how to make informed decisions about their IP, which is not only beneficial for the students, but also for patent attorneys, IPONZ as well as students' future employers and the New Zealand economy.

Introduction

Students studying at the School of Design at Victoria University create new Intellectual Property (IP) on a daily basis. Students who want to protect their IP need to consider costs and risks. Most of the time registering a patent or a product design requires external investment, disclosure of the IP to other parties as well as getting specialists and lawyers involved to ensure the process is followed appropriately.

To support the notion of IP as an economic driver, knowledge about IP and its processes is vital and should be second nature for these students. In literature there is a perception that the disconnect between innovation and commercialisation is thought to be entrepreneurship as well as IP.

The research will add to the existing studies, reviewing IP awareness in New Zealand by analysing the awareness and perceptions of students and investigating this with the perceptions held by existing patent holders and applicants. The research will also determine whether these perceptions can be confirmed based on information from IPONZ, patent attorneys and VicLink and the role they play during the application process.

The paper will highlight issues and misperceptions found during the research and discuss future opportunities to close the gap between innovation and commercialisation. The findings will support Victoria University's and VicLink's decision making by helping them understand the existing level of awareness and perceptions about IP rights and whether there are gaps of awareness that could be addressed within the curriculum. IPONZ and patent attorneys may also benefit in reviewing whether there is a common perception about IP and its processes to define improvements.

Literature Review

IP literature historically was focused on policy and law. The term mental property, property of the mind or the brain and whether property could be a synonym for monopoly has been debated over decades. Other discussions around the distinctions between literary property and industrial property in the past helped shape today's umbrella concept of IP being patents, trademarks, design and copyright or any other legal tools that protect intangible values[1]. International conventions and treaties allow a more unified perspective on the terms and use of IP in today's global economy.

Through globalisation and today's knowledge economy IP rights is gaining increased attention by businesses who are trying to gain competitive advantage through the tools available to protect their intangible property. The purpose of this literature review is not to debate if IP is ethically and morally the right tool to protect inventions of the mind. The review is to analyse firstly whether IP as a tool is in fact an economic driver to underline its importance. Secondly if there are other studies that explore peoples' awareness and perception about IP and lastly, if there have been previous reviews completed about New Zealand's IP system.

[1] Hughes, J. (2012). A short history of "intellectual property" in relation to copyright.

Is Intellectual Property an economic driver?

What would a world without IP look like? A European study found that the perception of the respondents was that the economy 'would be close to chaos'[2].

Often the success of an organisation or an economy is viewed in its capability to innovate. A study by Cummings, Petty and Walker (2014) explains that although innovative design can increase the performance of a business, it is not the only driver. They raise the question about which management processes may be required to maximise an innovation's value[3]. With the notion of innovative design being IP, Intellectual Property management may be one of those processes. Federico Guicciardini from the World Intellectual Property Organisation (WIPO) explains that IP is valued as an asset as it 'can be legally protected, can create income, can be valued, can attract investors and can boost R&D'[4].

If we look at an economy as a market place then one of the three rules for a market to function well is that the property rights need to be well defined, transferable and secure. IP rights provide a way to do this for intangible assets. The economic value lies in the sole use by the IP owner to negotiate, sell, license or enforce rights in court as well as build up reputation. It represents a contract with the government to protect the IP; however in exchange the ultimate destination of ownership will be the public domain[5]. IP rights provide incentives by giving the sole use and distribution rights to the IP owner for a specific duration, which have an influence in the economy by providing motivation to create new innovations.

[2] Office for Harmonization in the Internal Market, (2013). The European citizens and intellectual property: perception, awareness and behaviour
[3] Cummings, S. et al. (2014). Innovation is not the only thing.
[4] Salviati, F. G. (2010). The Importance of IP for Economic Growth and Business Competitiveness.
[5] Frankel, S. (2011). Intellectual Property in New Zealand, pp.3-20

A review of the New Zealand IP System found that there seems to be a link with innovation being one of the drivers of productivity; however for IP rights by itself there was no evidence[6]. A study by Gould and Gruben (1996) on the other hand found that there was a link between IP and economic growth based on a cross-country sample and suggest that the market structure may play a role with IP being an economic driver[7]. This could be due to the adoption and enforcement of the IP legal system by a government in a closed market versus a global market. Further where there is more competition, IP rights are one way of having a competitive advantage[8].

A study by Bosworth & Rogers (2001) found that there was a positive correlation between IP and market value, but also notes the accounting conventions that influence this correlation[9]. An example is the Nortel boost in 2011, where 6000 patents were sold due to the bankruptcy of Nortel, a Canadian telecommunication company. A dispute occurred between Apple and Google; where Apple paid $4.5 billion for Nortel's patents to prevent Google from developing the Android platform. The start of the IP 'bubble'; where inflated prices were paid by large organisations to gain strategic advantages and the volume of patent related deals adding to the economic growth in recent years[10].

Although the legal protection provides motivation to innovate, which can result in economic growth; the limitation of its use and distribution can also create monopolies. This can have a negative impact on the economy due to higher prices and can dampen the market demand during this period[11]. Open source is one of the trends that counter monopolies, but at the same

[6] Sharp, B. et al. (2010). Review of the New Zealand Intellectual Property System.
[7] Gould, D. et al. (1996). The role of intellectual property rights in economic growth.
[8] Wild, J. (2012). Introduction - The year it all changed.
[9] Bosworth, D. et al. (2001). Market value, R&D and intellectual property
[10] Wild Joff (2012), Introduction The year it all changed
[11] Besen, S. et al (1991). An Introduction to the Law and Economics of Intellectual Property.

time encourage new IP to be developed[12]. An example of this is the Android platform developed by Google and although free, devices require additional software to run, which usually are not open source[13].

A further example of a monopoly is an old patent that expired early 2014, which is the Laser Sintering 3D Printing[14]. Today 3D printing is one of the innovations that have emerged to threaten IP rights as it introduces a further possibility to counterfeit products more easily, draining economic growth[15]. Technology allows not only easy access to information, but also fast and worldwide dissemination of information sometimes wanted, but also unwanted. The role IP has in diffusing knowledge is another trend that is being given more attention and may play an important part for an economy[16]. An example of this is Megaupload, a file-sharing website that infringed on copyrights, where the owner of the website Kim Dotcom was sued by music labels[17]. Another example is Google Books, where books were scanned and published digitally without the authorisation of the copyright owners[18].

For the New Zealand government innovation and science is seen as an important driver for the country's economic productivity and also use IP as a key measure[19]. Government organisations like Callaghan Innovation have been established to support companies to commercialise their ideas by funding and providing grants for business research and development, promoting the creation of intellectual property further[20].

[12] Bensoussan, A. et al (2013). Intellectual Property Rights Challenged by Open Innovation.
[13] Stallman, R. (2011). Is Android really free software?
[14] Krassenstein, E. (2014). Laser Sintering 3D Printing May Now Take Off with a Very Important Patent Expiring Today.
[15] Amaral, R. (2014). Choose your battles to win the war.
[16] Sharp, B. et al. (2010). Review of the New Zealand Intellectual Property System.
[17] Dredge, S. (2014). Kim Dotcom and Megaupload sued for copyright infringement by music labels
[18] Flood, A. (2012). US authors seek damages in Google Books copyright row.
[19] MSI. (2014, May). Draft National Statement of Science Investment 2014-2024.
[20] Callaghan Innovation. (2014). Callaghan Innovation.

Is more awareness about Intellectual Property required?

In recent years patent applications in New Zealand have plateaued and design applications have decreased in comparison to the previous years[21]. Today one-third of research and development in New Zealand is accounted for by universities[22], creating IP worth over $500 million a year[23].

Strong IP practice requires IP awareness to provide tools that allow maximising the value of innovations and reinforcing government and corporate strategies[24]. One of the recommendations as part of the review of the New Zealand IP system is raising the awareness through education and by promoting the value of IP across the wider business community. The study included surveys with businesses and interviews with patent attorneys and solicitors, but did not review the awareness of students or entrepreneurs. New Zealand IP attorneys and advisors who were interviewed as part of the review found that their clients had a general awareness of IP, but not necessarily knowledge about IP. Overall the survey revealed that most businesses were in the lower percentile when it came to the awareness of IP rights. Most New Zealand businesses taking part in the survey agreed 'IP protection is an important part of overall business strategy'[25].

A European study[26] showed that most European citizens agreed about the importance of protecting IP and had a level of awareness and perceived knowledge about IP. Similar to the New Zealand study; the results of the responses when participants were asked specific questions about IP did not match with their own perception of knowledge. The participants saw IP as an important factor for the economy, however there seemed to be a degree of

[21] McDonald, M. (2013). Report of the Commissioner of patents, trademarks and designs.
[22] MSI. (2014). Universities.
[23] Universities New Zealand – Te Pōkai Tara. (2013). University Research Commercialisation.
[24] Parkhurst, J. (2012). NZSE Euronext's IP challenges.
[25] Sharp, B. et al. (2010). Review of the New Zealand Intellectual Property System.
[26] Office for Harmonization in the internal market. (2013). European Citizens and Intellectual Property: Perception, Behaviour and Awareness.

tragedy of the commons when asked about digital IP; for example as previously mentioned by the use of file-sharing websites.

Internationally and also nationally there are many actions taken to increase awareness on IP. The United States Patent Office for example has a specific online IP assessment tool that helps innovators to learn about their level of IP awareness and whether they need further training[27]. WIPO also has a database of different sources and activities in different countries about IP use and awareness[28]. New Zealand is furthermore a member of ASEAN (Association of Southeast Asian Nations), who is working together to achieve better IP education and greater awareness across the various countries[29]. Other movements include IP52[30] a private organisation who try to change the way we look at IP or the Licensing Executive Association (LES)[31] providing training on IP. Further IPONZ, New Zealand's Patent office, encourages students to learn more about IP and commercialisation[32] and also encourages teachers to raise students' awareness about IP in their brochures[33].

With the increase in IP awareness; however not necessarily knowledge, universities are looking at education and training in response to the industry demands. A study by Silva, Henriquesb & Carval (2009) raised that there was a gap between university programmes and industry skills requirements in graduates. They believe that their elective course 'product development and entrepreneurship' offered as part of the Mechanical Engineering degree at the Technical University of Lisbon in Portugal may fill this gap. A survey conducted with former students of the course showed that more than 90% of respondents found IP being taught important or crucial for their professional lives. The authors recommended that

[27] USPT. (2014). IP Awareness Assessment.
[28] WIPO. (2014). IP Outreach in Practice: Search Results.
[29] ASEAN. (2011). ASEAN IPR Action Plan, 2011-2015.
[30] IP52. (2014). Making sense of Intellectual Property
[31] LESANZ. (2014). LESANZ Inc - Chapter of LES International.
[32] IPONZ. (2013). Innovator's Guide.
[33] IPONZ. (2013). Intellectual Property.

engineers and industrial designers should receive hands-on education to protect their innovations[34]. A Brazilian study found that there was a lack of guidelines, curriculum and clear consistency to allow appropriate training in IP[35].

Another study by Fishman (2010) raised similar gaps. Although law education has followed the trends of IP, business and technology educators have not. Fishman's study confirms the trend of providing more education about IP management as it is becoming a profession for non-attorneys[36]. He discusses that there are two parts; the business and the legal function and that those should be separated in education as different industries demand increased IP skilled employees. A survey conducted with former students of the IP course taught at the Howe School of Technology Management of Stevens Institute of Technology confirmed that students' employers valued their knowledge about IP. Those former students primarily were interested in awareness of the use of each IP protection type, its nature, basis of defensives and how to apply for IP rights.

[34] Silva, A. et al (2009). Creativity enhancement in a product development course through entrepreneurship learning and intellectual property awareness.
[35] Gimenez, A. et al (2012). The Challenges of Teaching and Training in Intellectual Property.
[36] Fishman, E. A. (2010). The role of IP management education in a technology management curriculum.

Are New Zealand's Intellectual Property processes complex and expensive?

New Zealand's patent office has been in operation since 1870[37]. Kiwi ingenuity and the No.8 wire mind-set has always been part of New Zealand's makeup; however in today's environment designers, innovators and entrepreneurs need to think critically about how to protect their inventions.

Often the characteristics of the patent system is seen as expensive, complex and a lengthy process and the protection is only limited to the country that the patent is valid for. In a review conducted on the New Zealand IP system 'IPONZ was seen as a source of general information for their clients, not as a source of advice on applications'[38]. The costs of applying for a patent in New Zealand by the clients were not seen as expensive. The New Zealand government continues to improve the quality and the system as part of the Business Growth Agenda[39], which also includes IPONZ's online system where all applications are lodged. IPONZ offer professional services to support applicants in an efficient and cost effective way[40].

There is no single IP law that can be relied upon and it seems impossible to understand the policies without specialist knowledge about the industry[41]. New Zealand has various Acts that protect IP and there are different international agreements and protocols to support worldwide coverage. This includes the implementation of the Madrid Protocol to improve access to international protection of trademarks or the Patent Cooperation Treaty (PCT) as well as New Zealand's new Patents Act 2013 to align with international standards[42]. The

[37] IPONZ. (2013). Who we are.
[38] Sharp, B. et al. (2010). Review of the New Zealand Intellectual Property System.
[39] McDonald, M. (2013). WIPO Assemblies 2013 - General Statement New Zealand.
[40] McDonald, M. (2013). Report of the Commissioner of patents, trademarks and designs.
[41] Frankel, S. (2011). Intellectual Property in New Zealand, pp.3-20
[42] McDonald, M. (2013). WIPO Assemblies 2013 - General Statement New Zealand.

various legal applications can make IP a complex undertaking for the innovators and entrepreneurs; however there are guides and processes documented on IPONZ's website that can help with the filing of applications.

IPONZ's innovator's guide brochure for students describes scenarios of what the high-level process is; however when it comes to being ready to apply for a patent, the information refers to using a patent attorney[43]. Within the IP brochure for teachers, IPONZ describe IP law as complex and that it is best to consult a patent attorney[44]. Elena Szentivanyi, a member of the NZ Institute of Patent Attorneys explains on the Callaghan Innovation website that there are some particular activities that can be completed by individuals, which do not necessarily require involvement by a patent attorney. However, she also explained that it can be more costly later on when mistakes need to be fixed due to not having received the right advice as well as searching databases without the right expertise can be time consuming[45]. This also aligns with Fishman's research (2010) that legal issues could be treated separately. He explained that managers should have awareness on making decisions on when to start a litigation process[46].

The review of the New Zealand IP system was not necessarily looking at the individual processes; however found that 'awareness alone is not sufficient it must be developed into understanding. It can be concluded that the understanding that leads to strategic use of IP is dependent on management resources'[47].

[43] IPONZ. (2013). Innovator's Guide.
[44] IPONZ. (2013). Intellectual Property.
[45] Szentivayi, E. (2014). Of patents and partnerships.
[46] Fishman, E. A. (2010). The role of IP management education in a technology management curriculum.
[47] Sharp, B. et al. (2010). Review of the New Zealand Intellectual Property System. p 66.

Methodology

The research uses a mixed methodology of qualitative and quantitative research. It is based on the paradigm of post positivism[48] to allow exploring from a quantitative perspective firstly the level of awareness students have about IP rights, and secondly their perception about the application process for patents in New Zealand. The quantitative results have been analysed against the qualitative research. This research investigates whether the perception of the students is valid about the patent application process.

The research follows in principal the deductive theory[49], which involves preparing hypotheses, data collection, analysing the findings and confirm or reject the hypotheses. There are two main hypotheses for the quantitative research:

1. Students at the School of Design have only a basic understanding about IP rights.
2. The perception of students at the School of Design is that the patent application process in New Zealand is complex and costly.

The following is a sub hypothesis based on the results of the above hypotheses and will mostly be responded through qualitative data:

3. The perception of the students at the School of Design is valid about the patent application process in New Zealand.

[48] Denzin, N. K., et al. (1994). Handbook of qualitative research. pp. 110 – 116.
[49] Bryman A. et al (2007), Business Research Methods, The process of deduction, p. 11

Based on the hypotheses, there are five aims that will be addressed:

Type	Aim
Exploratory	To explore students awareness about IP rights
	To explore students perception about the patent application processes and costs
Investigative	To investigate whether the perceptions of students on processes and costs can be confirmed
Monitoring	To understand students' profile
Strategic	To help understand if there is a knowledge gap about IP rights that should be addressed

Table 1- Aims of research and data collection methods

There are two types of data that have been collected as part of this research, namely qualitative and quantitative data. This data was collected through surveys, secondary data and interviews. Below is a high-level overview of the data collection that was used to analyse the hypotheses:

	Awareness and Perceptions	Patent Application Process	Reason
Quantitative	Student Survey	IPONZ information on costs and duration	To understand the level of awareness and perceptions and review if they are valid. To understand students' profile
Qualitative	Interviews with patent holders and patent applicants	Interviews with IPONZ*, VicLink and patent attorneys	To explore reasons for and confirm if perceptions are valid. To understand if there are gaps between perceptions and the actual patent application process. To understand the role IPONZ, patent attorneys and VicLink play during this process. To understand how a potential knowledge gap could be addressed

Table 2- High-level overview on data collection

**The research will be limited to the patent application processes in New Zealand.*

Student survey

Students were asked to fill in a paper-based anonymous survey at the School of Design during core courses to capture as many students as possible. Cluster sampling of all students during core courses allowed for a good representation of the two streams design and media. There is a potential that students were missed, who were not at university at the time of the survey being conducted. The survey and the detailed research questions are outlined in Appendix A and B.

It needs to be noted that the students do not represent the general public; however are representative of future designers, entrepreneurs and inventors. The sample only represents students from Victoria University and do not represent students from other universities.

Interviews

For the qualitative research interviews were conducted to collect data for the investigative and strategic aims. For the qualitative research a cross-sectional design was used and critical cases[50] were selected. To achieve a broad spectrum of different actors within the patent application process, the following stakeholders were interviewed:

Who	**Reason**
Jeonbin Ok Current patent holder and lecturer at School of Design	to investigate the perceptions of current patent holders to investigate the role IPONZ and patent attorneys play from a patent holder perspective
Kris Ericksen Current patent applicant	to investigate the perception of the current application process to investigate the role IPONZ and patent attorneys play from a patent applicant perspective

[50] Bryman A. et al (2007), Business Research Methods, The process of deduction, pp. 62-63

Who	Reason
IPONZ Matt Kennedy-Good (External Relations & IP Awareness Team Leader) Liz Francis (Patents Designs & Plant Variety Rights Manager) Sam Ting (Examiner)	to investigate the patent application process in New Zealand to investigate legal and managerial functions during the patent application process to investigate key messages for applicants to investigate who applies for IP rights to understand IPONZ's role to understand how a potential knowledge gap could be addressed
VicLink Anne Barnett (Senior Commercialisation Manager)	to investigate VicLink's perception about legal and managerial functions during the patent application process to investigate key messages for students to investigate perception about IPONZ's and patent attorney's role and information to understand VicLink's role to understand how a potential knowledge gap could be addressed
Patent Attorneys Henry Hughes: Adrian Evans (Registered Patent Attorney) AJ Park: Damian Broadly (Registered Patent Attorney, specialised in trademarks and copyright) Mark Hargreaves (Registered Patent Attorney, specialised in commercial and corporate matters)	to investigate their perceptions about legal and managerial functions during the patent application process to investigate key messages for students to investigate perception about IPONZ's role and information to understand the role patent attorneys play to understand how a potential knowledge gap could be addressed

Table 3- Interviewees, reasons for qualitative research

The cases selected represent both IP professionals offering services to applicants as well as applicants and patent holders themselves. The selected method for this data collection was the semi-structured interview. This allowed recognising relevant aspects and investigating these areas further. The structured questions as well as the consent form are outlined in Appendix D and E. The interviews were not anonymous and it must be noted that the results are perceptions and opinions from the interviewees and do not necessarily represent the organisations themselves.

Student Survey Results

176 students were asked to fill in the survey from different core industrial and media design classes across different years from 1st to Master classes. Students' ages ranged between 17 and 34 years with a mean of 20.6. 60% of the students were male and 40% female. Three of the students indicated that they have had previous experience with IP rights applications.

All students filled in the survey, however did not always answer every single question. The results only include the actual responses; non-responses have not been included in the results and calculations. In regards to profiling, it needs to be noted that 1st year students and Master students were not representative enough across the two courses to draw conclusions for these classes. The report outlines a summary of the findings. Details can be found in Appendix C.

Awareness about IP rights

To confirm or reject the hypothesis on whether students have only basic understanding about IP rights, the questions were focused on students' perception about the importance of IP, their perceived knowledge about IP and analyse differences between study years and between courses.

Importance of IP

From 171 responses, 76% of students believe that IP is important to good design. Students responded on a scale of 1-7, with 1 being of low importance and 7 being of high importance. The 76% include students who selected a rating between 5 and 7.

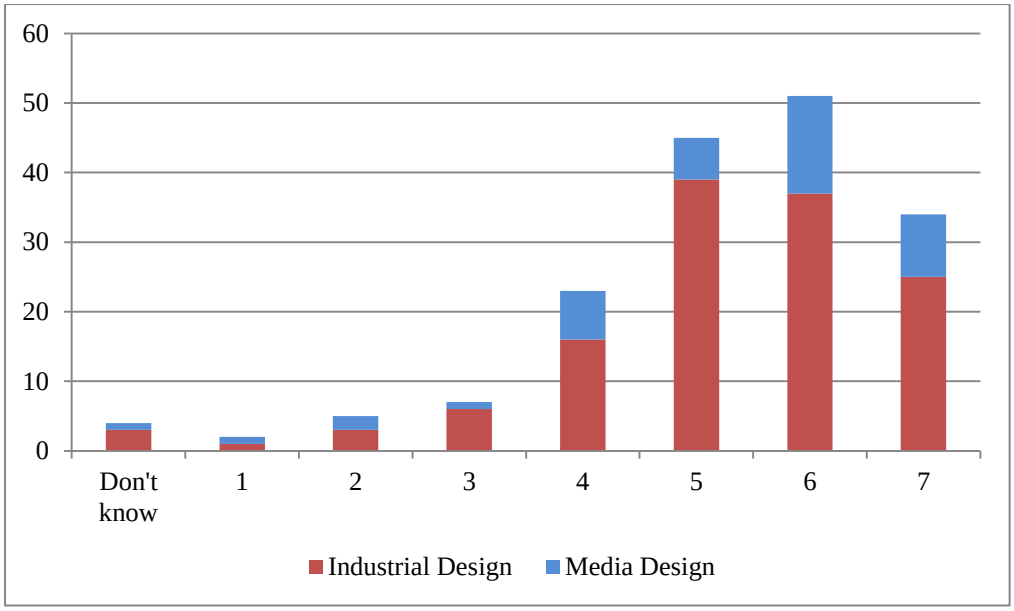

Figure 1: Number of responses on a scale of 1-7 by course

The importance per year shows that 2nd, 3rd year and Master students rate the importance of IP higher than 1st year students by 10%. This includes students who selected a rating between 5 and 7.

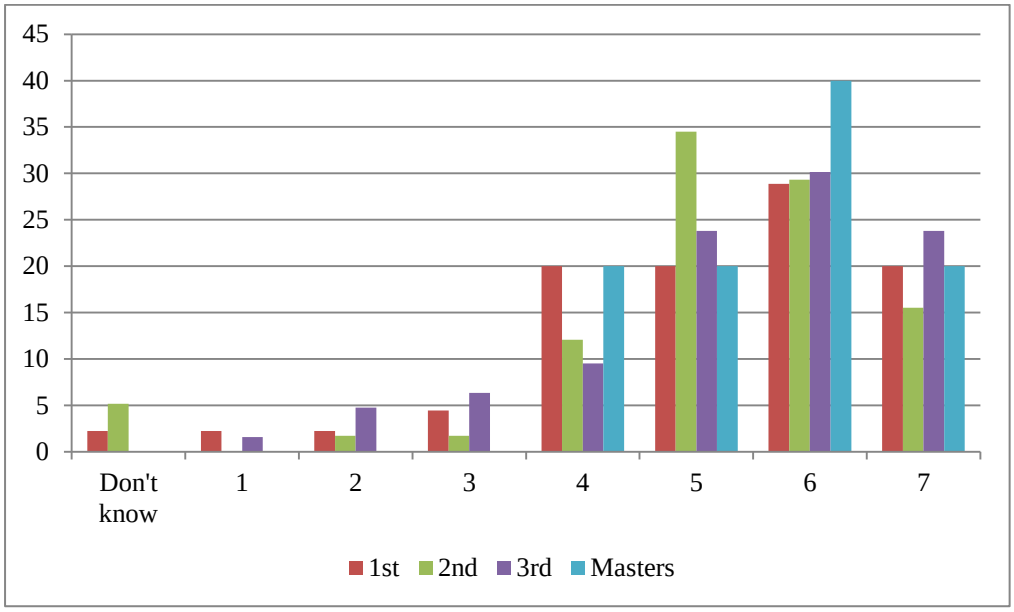

Figure 2: Percentage of responses on a scale of 1-7 by year

Perceived knowledge about IP rights

Students were asked about their perceived knowledge about the different IP types copyright, patent rights, design rights and trademarks. The results show that most knowledge is believed to be with copyright and generally little knowledge about the other rights. Over 60% of students indicated that they had little to no knowledge about any of the IP rights and in particular design and patent rights with 70%. There was no significant difference between media and industrial design students. The results include students who responded on a scale of 1-7, with 1 being little knowledge and 7 being very good knowledge, between 1 and 3.

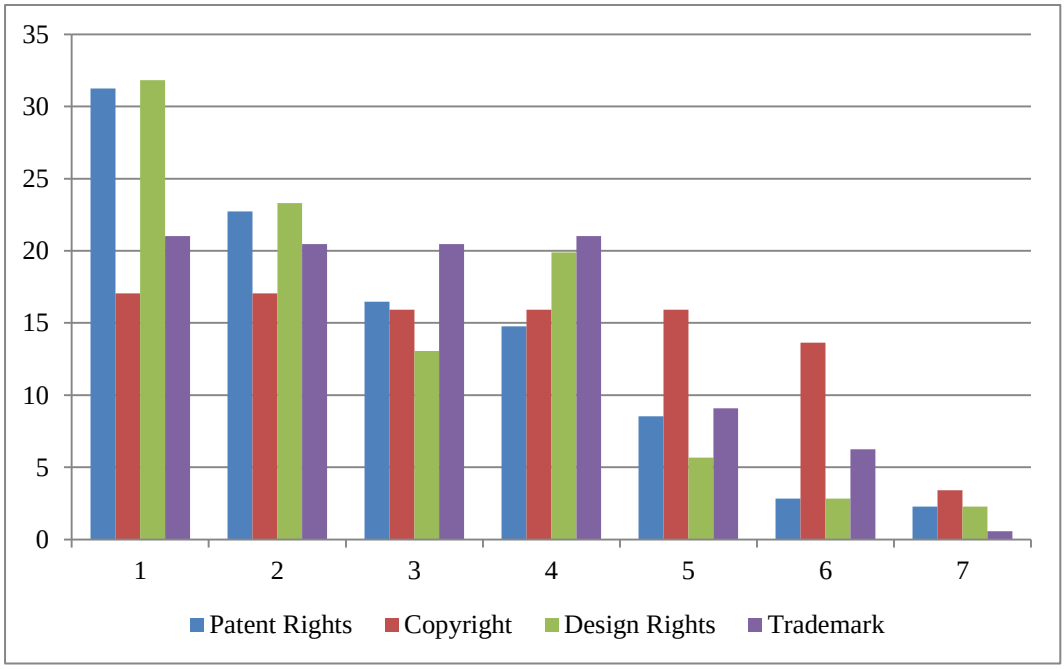

Figure 3: Percentage of student responses on a scale of 1 – 7 by IP right

There are no significant differences between years; however it needs to be noted, that first year students have rated a greater perceived knowledge in particular with patent and design rights in comparison to 2nd or 3rd year students.

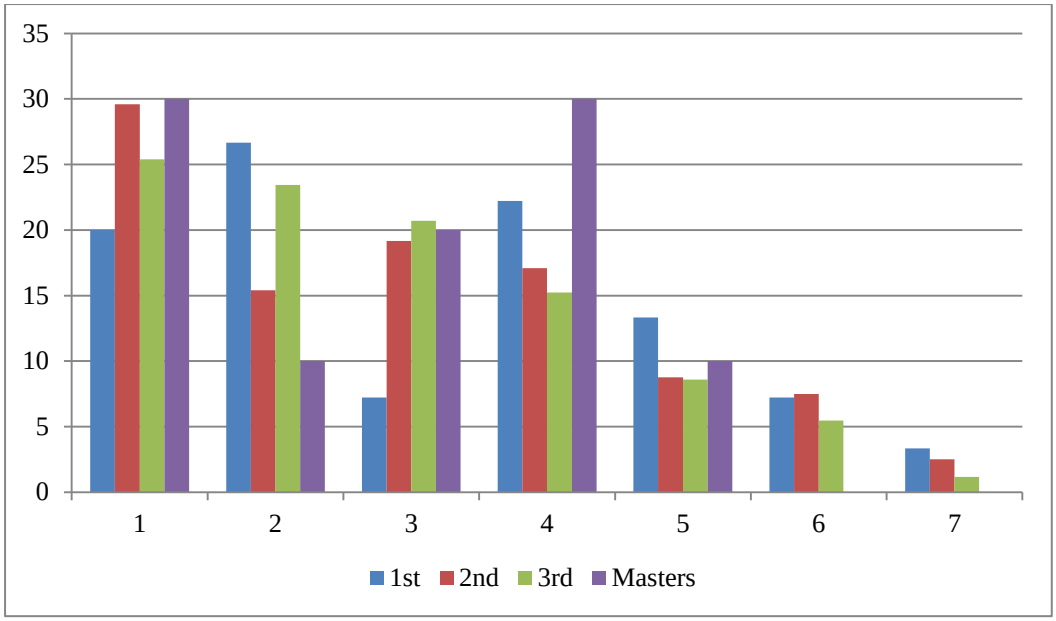

Figure 4: Percentage of student responses on a scale of 1 – 7 by Year

Knowledge about Copyright

Based on a multiple choice question, students were asked about the duration of copyright for computer generated work. 89% of students did not know or selected the incorrect answer. 52% of the students who answered correctly were 2nd year students. The students who had this answer correct rated their own knowledge about copyright between 1 and 6, with a mean of 4.1. There was no significant difference between gender and courses.

Knowledge about Trademarks

The second question was about how to protect a company logo, 33% did not know or answered incorrectly. However 26% of students responded by copyright and 40% by trademark or both. There were no significant differences between years and gender. However it needs to be noted that of the correct answers 78% of the students were from the industrial design stream. All Master students that answered this question had this question correct. The students who had this correct rated their own knowledge about trademarks between 1 and 7, with a mean of 3.1.

Knowledge about Design Rights

When asked about how to protect a new furniture design, 68% did not know the answer or answered incorrectly, 23% responded by design right and another 9% by copyright. 85% of the correct answers were from industrial design students. 40% of the correct answers also were provided by 3rd year students. The students who had this correct rated their own knowledge about design rights between 1 and 6, with a mean of 3.3. There was no significant difference by gender.

Perception on the patent application process

To confirm or reject the hypothesis 2 that the perception of students is that the application process for patents is complex and costly, questions focused on the steps, costs and duration of a patent application. Although only 3 students of the 176 respondents have had previous experience with any IP application process, the results help understand the general perception of these students.

Experience with patent databases and IP terms

93% of 168 responses indicated that they had never accessed a patent database before. The database that was named most often was Google Patents. This may be due to lecturers using Google Patents during courses. Also only 6 students recognised IPONZ and 19 students VicLink of a selection of various IP terms.

Knowledge about the patent application process

Students were asked to rate the patent application process in New Zealand based on its complexity. 152 students did not know the process, however of the 20 respondents 60% believed that the process was difficult with a rating between 5 and 7 based on a scale of 1 to 7, with 1 being easy and 7 being very difficult. Students were also asked what steps they would take to apply for a patent. Although only 27 students responded to this question, the

most common answer was to contact help and research online on how the process works. For a detailed list please refer to Appendix C.

Perception about the duration

The perception in regards to the duration to receive a granted patent is a mean of 13 months and a median of 6 months to receive an approved application. The results were based on 32 respondents of a total of 102 responses, with 70 students stating that they did not know the answer. There were no significant differences between gender, year or course.

Perception about costs

In regards to costs, of the 149 responses 36% of the students believe that a patent costs on average between $5,000 and $15,000 in New Zealand. 17% believe between $1,000 and $5,000, 13% less than $1,000 and 7% believe a patent costs more than $15,000. 100% of Masters and 59% of 3rd Year students rated the costs higher in comparison to 33% of 1st and 40% 2nd Year students.

Perception about the role patent attorneys play

Finally students were also asked about when they would use a patent attorney. Of the 167 responses, 65% of students did not know when to use a patent attorney. Of the remaining 58 students, 20% would use patent attorneys to apply for IP rights, 20% for proceedings, 17% to sell IP rights and 18% to maintain IP rights. 99% of the 70 students, who responded to the question on whether they could name a patent attorney, could not name a patent attorney.

Summary of Findings

The purpose of this analysis was to find out about the students' level of knowledge and perceptions about IP and its processes as well as their profile. In summary the most interesting results are that:

1. 76% of students rated IP rights as important to good design. In particular 2nd, 3rd and Master students rated this as high, which may be due to an increased interest in commercialisation of designs.
2. 60% of students perceive their own knowledge about the individual IP rights as low. Students indicated the least knowledge to be with patent and design rights. Surprisingly 1st year students' perception about their own knowledge was higher than 2nd, 3rd and Master students.
3. The low rating was reflected in the results of the specific questions that were asked about IP rights. Generally students did not have great knowledge about the different IP rights, which suggests that most students would not know what type of IP right to use to protect their IP.
4. There was no link between students who answered the specific questions correctly and students' own rating about their perceived knowledge. This is also true for 1st year students who had a higher confidence level.
5. Thus it comes as no surprise that students also seemed to more likely use a patent attorney when they moved through their degree programme.
6. Most students have not searched a patent database before. Most students also did not know the process on how to apply for an IP right and would most commonly contact help and research online on how the process works. Only a number of students recognised IPONZ or VICLink out of a selection of other typical IP terms.

Interviews

Importance of IP

Most interviewees deem IP important with caveats. The caveats are that the importance can vary depending on the business itself (IP dependent or independent), what the product or the type of technology is (for example a new design, new mechanical invention or pharmaceuticals) and who the market is (New Zealand only or global).

The benefits and its underlying importance are the protection and enforceability of IP rights. It provides incentives as it offers a limited monopoly and inventions can be turned into a competitive advantage. Other insights were that IP is not equivalent to good design and is also not a requirement for good design. Although organisations can have an aggressive IP strategy developing based on gaps in the IP landscape, it should not be at the heart of designing and inventing. An excessive dependence on IP can also be a hindrance for new development and design.

Further observations were that the importance is linked to the timing of protecting IP and making an informed decision on how to proceed. The importance or value of the IP lies in the ability to commercialise and enforce the idea otherwise it has no value. For example other options that could be considered when protecting IP are licensing contracts, supplier agreements and other arrangements, which can provide rights to the owner.

Patent Application Process

IPONZ explains the patent application process on their website with simple steps[51]. The information is mostly for private applicants on how the process works. There are also examination guidelines that are aimed at patent attorneys and professionals from a technical perspective. Based on the Patent Act 2013 the entire process is online. The system provides a case management system, which also provides further instructions. For patents New Zealand has signed up to the Patent Cooperation Treaty (PCT), which allows the applicant to apply into 148 countries through IPONZ.

There are two parts to the IP protection process. The first part includes step 1 and 2, as outlined in the next table, which relate to aspects that involve making the decision on whether and how to protect the IP. The second part includes steps 3-11 and involves activities of actually protecting the IP itself. Step 1 and 2 relate to all types of IP; however for the table below step 3-11 only relate to the patent application process. The table in Appendix F gives a detailed overview of the steps described by the students, applicants, VicLink, patent attorneys and IPONZ and highlights the roles and gaps. Based on the interviews the typical steps and findings for a patent application are summarised as follows:

ID	Steps	Findings
1	Preliminary Search - Idea inception - Quick prior art search	- Usually this is done by the inventor. - Patent attorneys and IPONZ advise on doing this before making any further investment. - IPONZ has links to the databases and guides on how to search

[51] IPONZ, (2014). The patent process flow chart and commentary

ID	Steps	Findings
2	IP Strategy and Planning - Decision on protection type - Roadmap - Review process steps - Review Potential partners - Contact Patent attorney	- Inventors need to think about how to protect their idea. IPONZ and business.govt.nz provide information on this. - Students here review guidelines and process documentation on how the application process works. - This involves contacting i.e. VicLink, professionals or patent attorneys to discuss the options and IP strategy or roadmap.
3	Preparation - Develop product - Documentation - Process review - Full Patent search (prior art and freedom to operate)	- Applicants here talked about preparing models and developing the product as well as documentation. - Patent attorneys suggest a full patent search and discuss results with patent attorneys or hire patent attorney to complete the search for them.
4	Provisional Patent Application or PCT Application - Draft Application - Submit Application - Priority Date from IPONZ	- Provide background information for patent attorney to draft application - IPONZ, patent attorneys and VicLink agree that it is not recommended that applicants do the drafting themselves. - The application must be completed before any publication is done.
5	Complete Specification or PCT Application - Evidence and adjustments - Negotiate contracts - Submit Complete specification	- Evidence and adjustments can be made prior to filing a complete specification. - During this period partners are searched and contracts agreed.
6	IPONZ Publication	- A patent is published on the IPONZ website 18 months from the earliest claimed priority date of the application. - Publication does not guarantee that a patent will be granted.
7	Complete Specification PCT National Phase	- IPONZ and patent attorneys describe that a decision needs on the countries to file into. Possible 148 countries.

ID	Steps	Findings
8	Examination - Request examination (NZ) - Deal with objections - Acceptance	- In New Zealand examination needs to be requested. - Patent attorneys deal with local agents and patent offices to resolve objections.
9	Opposition	- In New Zealand oppositions can be made within 3 months of acceptance. - Hearings office is managed by IPONZ.
10	Grant	- After three months of no opposition the application is granted.
11	Renewals	- Pay renewal fees

Table 4 – Summary findings about steps described by interviewees

The IP strategy and planning step is about making decisions on how to protect a new idea or invention. As design and media students come up with new ideas every day, they will require a vetting process on which ideas they want to proceed with and what type of IP right protection they would require.

It was highlighted that the provisional application must be filed before going public or making any commercial arrangements because the contract with the government is that the inventor discloses the invention for the first time in return for a limited monopoly. If the invention has been disclosed before the provisional application has been submitted then the inventor loses the right to apply for a patent. It was further emphasised that the provisional filing process is a great tool to test the market, review any potential partners and to commercialise the invention before making any further investments. The PCT application was mentioned as another good strategy to extend this time.

Rating of the patent application process in New Zealand

IPONZ describe the patent process as fairly complex in particular if an applicant is also considering applying for overseas patents. Depending on the complexity of the invention it is potentially not feasible for students to apply for a patent by themselves without significant risks to the quality and scope of protection. Trademarks and designs on the other hand are easier and could probably be completed by the students themselves.

The applicants interviewed both used patent attorneys during the patent application process. The design application was completed by one of the applicants himself, who found the process easy and straight forward.

Patent attorneys find the New Zealand process easier in comparison to other countries. The United States patent office for example has a lot more paperwork involved and is not completely online or countries where witnessed signatures are still required. This usually takes a lot of time and money that doesn't add any value. Patent attorneys added that most applicants don't just file in New Zealand and filing in other countries can become more complex.

VicLink also agrees that the process in New Zealand is easy with no particular barriers and the applications can be completed online. VicLink have a qualified patent attorney who knows the process and how to file provisional applications. As mentioned by the patent attorneys it gets more complex when filing in other jurisdictions and when local agents are required to deal with the various patent offices.

Average Duration

Based on the typical steps the timeframes for a patent application were outlined by the interviewees as follows:

ID	Steps	Timeframes
1	Preliminary Search	Idea inception
2	IP Strategy and Planning	N/A
3	Preparation	N/A
4	Provisional Patent Application or PCT Application	Confirmation of Priority date
5	Complete Specification or PCT Application	After 12 months
6	IPONZ Publication	After 18 months
7	Complete Specification PCT National Phase	After 31 months
8	Examination	Depends on countries, examination in New Zealand needs to be requested within 5 years of complete specification. IPONZ provide a report within 3 months from request and the balances of the first report will have to be completed within 12 months
9	Opposition	After acceptance 3 months for any oppositions
10	Grant	From the Priority Date to Grant can take between 3-5 years or even 9 years if examination is requested at the end of 5 years
11	Renewals	First renewal after 4 years and then yearly

Table 5 – High-level Patent Application Process Steps

Once a provisional application has been submitted the applicant receives a priority date, which will determine the complete specification filing date. Once a complete specification has been submitted, which would be either after 12 months or 31 months if a PCT application was filed, then under the new Patent Act 2013 the applicant is required to request an examination to process the application. This request has to be completed within 5 years of the complete specification submission date; however IPONZ can also direct examination. IPONZ will then have 3 months to issue a first report, which will then need to be responded to within 6 months and all of the balances of the first report will have to be completed within 12

months to get the patent granted. IPONZ explain that the new Act provides clearer and tighter timelines and their goal is to complete the examination within 9 months.

Patent attorneys labelled the New Zealand process as fast in comparison to other countries like the United States, where they have had a backlog of up to 3 years[52]. Applicants don't usually want the examinations to go too quick because it gives them more time to scope and test the market. However the new Patent Act, which aligns with international standards, will counter stretching timelines as every application will be published on IPONZ's website after 18 months, whether they are examined or not.

As an average duration interviewees estimated that if an applicant submitted a complete specification directly without a provisional application and fast tracked, then a patent could be granted within 12 to 18 months in New Zealand. However this is not typical for any patent application and the duration was estimated to be between 3 and 5 years between the first provisional application and the grant of the patent, which for international applications was also dependent on the backlog in the different countries.

Patent attorneys mentioned that although it is important to reduce backlogs, the integrity and quality of examinations cannot be impaired by efficiency. This has caused some criticism in the industry as at the time of filing, the invention may have been found novel; however at the time of examination the invention may have already been superseded and seem old-fashion.

[52] Maulsby R. (2011), President Obama Signs America Invents Act

Average Cost

IPONZ's fees can be viewed on the website, which are marginal in comparison to the overall costs. The fees can be broken down into provisional and complete specification application fees, examination fees and renewal fees as well as re-examination fees for any variations. The fees in 2014 for a complete patent application in New Zealand is $850[53].

The professional services of patent attorneys should be added to the overall costs. Patent attorneys usually work on a time and material basis and costs can be discussed or estimated in advance. Depending on the technology and the number of claims, the time it takes to draft a patent application varies. The initial cost is usually for the provisional application, after 12 months there may be some adjustments required before filling the complete specification. For a specification in New Zealand applicants could expect an overall cost between $2,500 and $5,000 including fees; however depending on the complexity and number of claims this could be up to $10,000 to $20,000.

If an applicant decides to file a PCT application and enter into the national phase then additional international fees will apply as well as professional services from local agents. Here the costs vary significantly. Ballpark figures mentioned during interviews varied between $100,000 and $250,000 or more depending on the complexities, number of claims and how many countries have been selected.

[53] IPONZ (2014), Patent fees

Database searching

IPONZ's goal is to provide a robust and user-friendly database. However if someone is looking at applying for a patent it is generally not only for the New Zealand market. Some of the popular databases are the US Patent Office database, Australian AusPat and European Espacenet database. There are also other databases such as Google Patents or other paid databases. The IPONZ website has guidelines on how to search the IPONZ database. The better someone understands the way the search engine works, the better and more relevant search results will be. Having a strategy for searching helps, however professional help through i.e. patent attorneys could be sought and is dependent on the level of investment and risk.

AJ Park usually use paid and international databases like Espacenet to search patents. Applicants interviewed used the free international databases such as Espacenet, USPTO or Google Patents to complete their search. Due to the international focus the IPONZ database was not actively searched.

VicLink mentions that it can be very difficult to find particular patents in the IPONZ database as the search functionality is very clunky. This may be due to the expectation that keyword and quick searches cover everything, for example inventors' names or the title of a patent. VicLink uses Espacenet from a worldwide coverage perspective, which has a more powerful search engine. The classification system will result in more relevant patents rather than endless irrelevant results. VicLink sometimes does the searching, but also ask external companies to complete the searching for them.

With the accuracy of the search results and depending on the classifications it can become difficult to find the relevant information. The difficulty may also be in interpreting the specifications and understanding whether the information is relevant. People with science backgrounds usually already have gained search skills during their university time and the database searches are very similar. This is certainly something that could be learnt by students who have not completed this type of searching before. Students need to be aware that it is not the same as a simple search in Google. Patent databases use a classification system, which uses letters and numbers and represents groups based on what the product or technology is. If there are for example no obvious keywords for their invention then it might be easier to use the classification to search the database to find relevant patents.

Student DYI Patent Application

If students were to file their own patent application, they would require searching skills, able to draft a patent, understand the basics of patent law as well as potentially overseas patent law. Based on the identified process steps, the following was discussed by the interviewees on what students could complete during the patent application process:

Preliminary Search

IPONZ and patent attorneys both believe that students should complete their initial preliminary search before getting too far ahead with their idea. By searching early and knowing whether the protection will be broad or narrow will give a better idea of whether the idea is worth pursuing.

Henry Hughes explains that Google patents can be a good tool if students are not familiar with the classification system and because it searches the US patents, it will give applicants a good idea of what is already out there. This is something where students can add most value and also helps them understand the IP landscape better. VicLink believes that Google patents could however intimidate students as it returns thousands of results, which might only be vaguely relevant to what the student is looking for.

IP Strategy & Planning

IPONZ, but also patent attorneys particularly emphasised the importance on creating a roadmap of what IP protection will be required for a new invention.

IPONZ in this regards believe that if the budget doesn't allow for external advice, then this is something that can be done by students, however it is recommended to discuss this with an experienced independent to decide whether an idea has value and is worth pursuing. Business.govt.nz has information in regards to protection and commercialisation and will

pose a set of questions on the IP strategies for SMEs. IPONZ also suggest that students could speed up the process by informing themselves about the process, guidelines and steps involved to apply for a patent.

Preparation

VicLink ask their researchers to complete some of the literature review as well as write up their complete experimental results that are relevant and provide background information to the invention.

The patent attorneys ask their clients to provide background information to the invention, the more information and succinct information there is, the more efficient the process will be.

Students can complete their own full search and patent attorneys suggest that the search results are discussed with their patent attorney and decided whether more searching is required. Students could come to a patent attorney with the invention and file a patent without any searching, however this may be wasting time and money. If a student has time to complete the searching then this will be valuable for the entire process.

Provisional Patent Application

All interviewees believe that drafting their own patent applications on the other hand should generally not be attempted by non-professionals. This is because patent applications are usually worded in a very particular way and determine how strong and broad or weak and narrow a patent is. If a patent is worded incorrectly the patent might only be of limited value. If the invention is valuable, it should be worth investing in.

As part of the process VicLink, but also patent attorneys ask inventors to review the drafts before they are submitted to IPONZ. Trademarks and design rights on the other hand could potentially be managed by applicants themselves.

Renewals

IPONZ suggest that renewals and maintaining a patent could be completed by applicants or students as this is mainly system based.

AJ Park also have a computer system that helps keep track of all deadlines. This service can save customers time and hassle in particular if there are overseas deadlines to keep track of as well.

Role of VicLink

VicLink is a private company owned by Victoria University. Their role is to provide IP and commercialisation support services to staff of the university based on their IP policy and agreements they have with employees. VicLink itself does not retain any IP and they work solely on behalf of their stakeholders. VicLink searches for external partners who are prepared to commercialise an invention. Another function that VicLink does is linking different projects where the combination of different IP can create new IP as well. VicLink have also recognised the need in the digital and media design space requiring different IP support.

Role of a Patent Attorney

The role of a patent attorney is initially to provide advice on the strategy on why, how and where to protect IP. The patent attorneys' role is about understanding the business objectives and reviewing the invention in regards to novelty and inventiveness and the best options for IP protection. If the decision is made to patent an invention, then the role of the attorney is to scope the breadth of the application and complete prior art and freedom to operate searches, then drafting up the application and claims, which usually takes a few iterations to get the specification right, and filing the provisional patent application with the patent offices. If a client files in different countries then this will involve instructing overseas agents about the patent application. Once the patent applications have been granted, patent attorneys maintain and handle the renewals for their clients including overseas patents.

For patent applications IPONZ believe that the role of a patent attorney is very important due to the complexities for some of the patent applications as it requires a great deal of expertise in that area and also IP law and the process in general. The applicants find the role of the patent attorney also very important. They help prepare a roadmap and understand the legal

language and terminology, writing up the patent specification and claims in a style that will match the corresponding countries.

The advice given by IPONZ, patent attorneys and VicLink is to select a patent attorney who is an expert in the particular subject matter. Patent attorneys will know already what is out there and understand local and international laws in their field of expertise. Another criterion that was raised is that the applicant feels comfortable with the patent attorney as it usually will be a long-term relationship. VicLink adds that if the inventor is comfortable working over the phone with someone, then the patent attorney does not always have to be in the same location. This is usually a requirement if there is no expertise in New Zealand in a specific field.

One part that has not been strongly covered by patent attorneys in the past is where IP protection meshes with commercialisation because once the provisional application has been lodged most applicants are looking for commercial partners, which requires a different type of legal support.

Role of IPONZ

IPONZ is the examiner of patents and is not an advisor. Their job is to examine, grant and register IP rights and maintain the registry. The main part is to ensure that the decision is robust. IPONZ also give information about the status of a case and give clear and concise information about the objections that have been raised. IPONZ also runs the hearings office to deal with oppositions.

IPONZ's website is currently the main source of information. The applicants and VicLink found that the information on IPONZ's website is generally good, but sometimes tricky to find specific information. The information mostly referred to by patent attorneys is the

examination guidelines. Other information that was generally looked at was the hearing and court decisions that can be subscribed to.

As a government service it is IPONZ's responsibility to explain how the processes for patent applications work. Because the online system is easy to use, it may invite applicants to more easily apply themselves rather than contacting patent attorneys. Although IPONZ have a statement at the end to contact a patent attorney, there is no information about the reasons why it is a complex process and the risks involved. During the interviews patent attorneys raised this as a risk to applicants because if the application has been filed incorrectly before going public, then the applicant might end up with a weak or too narrow patent protection.

IPONZ are an impartial regulator and do not provide advice because one-size does not fit all, which was one of the reasons why IPONZ have not provided this type of information in the past. They are aware that other patent offices like Australia or the United Kingdom provide more information and tools in that area. IPONZ are currently working on new material in regards to commercialisation and have also a new info graphic[54], which explains in easy terms which IP right to use to protect IP. IPONZ's goal is for applicants to understand the risks of doing nothing, risks of doing it yourself and the benefits of really thinking through a strategy to make IP part of the business plan and processes.

IPONZ have also a helpline to ask questions or get directed to examiners to clarify objections raised in the reports. One of the applicants interviewed contacted the IPONZ helpline to discuss the types of design registrations that were possible. VicLink on the other hand never contacts IPONZ directly and does all of its correspondence through patent attorneys. One of the patent attorneys interviewed contacts examiners frequently to clarify objections raised in the report.

[54] IPONZ (2014). Types of IP protection

Summary of Findings

The purpose of this analysis was to confirm whether the perceptions of students about IP and the patent application process can be confirmed. In summary the most interesting results from the interviews are that:

1. The interviewees found IP important; however is dependent on the business, product and market. The importance or value of the IP lies in the ability to commercialise and enforce the IP right.
2. IP protection needs to be considered before publishing anything.
3. New Zealand has an easy online filing system; however the drafting of patent applications is complex. It was recommended by all interviewees to use a patent attorney to file a provisional application.
4. Students can add most value during the first part of the IP protection process, by doing their own searching, learning about the process and guidelines, having an IP strategy for their inventions and being prepared when meeting with patent attorneys.
5. Filing a provisional application can help the inventor gain time to test the market.
6. The average duration to get a patent granted is 3-5 years depending on the countries.
7. For a specification in New Zealand applicants could expect an overall cost between $2,500 and $5,000 including fees; however depending on the complexity and number of claims this could be up to $10,000 to $20,000.
8. The advice given by IPONZ, patent attorneys and VicLink is to select a patent attorney who is an expert in the particular subject matter.

Discussion – Awareness

Based on the findings from the literature review, student surveys and the interviews, there seems to be a gap in awareness and knowledge about IP. The cost and complexity of the process should not be a barrier for students to consider IP protection. The interviewees discussed why IP awareness is important and the challenges with raising IP awareness.

Why is awareness important for students?

IPONZ raises that without awareness some of the students may be surrounded by risks. Social media and blogging give inventors and designers a fast and easy opportunity to communicate their ideas out in the public domain. Students that are unaware might not realise at the time that the opportunity to protect their idea through patent or design rights is then out of reach. One of these examples mentioned was the 3D printed cast by Jake Evill[55] who went public before registering a patent or design. IP awareness is about being able to ask the right questions at the right time and ultimately make an informed decision.

What are the challenges?

97% of businesses in New Zealand are small businesses[56]. Not only students, but also small companies in New Zealand face similar issues with IP knowledge. In businesses IP management is usually undertaken through middle management; however in small businesses the owners do everything and unfortunately IP is not the first thing on their mind. It is important that students and small businesses understand that IP rights should be the first activities on their list when they have a new idea or invention. Protecting IP should become part of the design process or for business part of their strategy. Currently IP is not covered as part of the design process in education and the link to commercialisation is weak.

[55] Stinson, L. (2013), Is this cast the future of healing broken bones?
[56] MBIE (2014), The small business report 2014

Another challenge is that most people think domestically when they should be thinking globally. Furthermore New Zealand's DYI culture adds to this challenge and although useful, it can only bring a business so far.

When should awareness be raised?

There might be some link between education and raising the awareness of IP rights, but the timing of when this should be varies between the interviewees from primary school to tertiary school. The previous review of the New Zealand system also suggested that awareness should be raised by educators. There are entrepreneurial children and if the importance of IP is raised during their childhood, then IP could become part of the vocabulary in New Zealand. Other opinions are that awareness is needed, but it should not be exaggerated to keep the integrity of the patenting system intact.

Who should raise awareness with students?

For IPONZ although raising awareness is important, budget, resources and staff are limited and IPONZ's core role is to examine and grant patents.

IPONZ works with their stakeholders across the sector including business.govt.nz, Callaghan Innovation, Kiwinet, MBIE IP policy and to an extent Result 9 programme for better public services to raise awareness. Other stakeholders include NZIPA, universities, incubators such as Grow Wellington or Ice House, but also other patent offices around the world.

AJ Park and Henry Hughes also raise awareness by going to universities or organisations to talk about IP. It was raised that in terms of information sharing and the educational aspects that IPONZ may not be necessarily the right entity to be raising awareness, but more objectivity from the industry was needed. There seems to be a lot of information within the patent attorney industry that doesn't necessarily find its way out into the public.

Both IPONZ and patent attorneys are service providers as part of the IP protection process. They try to encourage more people to use the system; however it is difficult with students as their interests are with what is being taught at university and the initiation of the IP protection process can only start by students having knowledge about the purpose and use of the system.

Based on the New Zealand IP system review educators should be taking a more active role in raising awareness and understanding about IP. Whether or not the School of Design or Victoria University should be taking an active role could be debated further; however another question that should be raised is if universities are capable of raising awareness and providing this type of information to students. In the case of the School of Design the McKinsey 7S framework has been used and information from the interviews to review the strengths and weaknesses.

Strategy	The School of Design currently does not take an active role in offering IP information to students.
Structure	VicLink offers IP support to staff; however not to students. The curriculum currently does not cover IP as part of a core course.
Systems	There is no IP policy for students or contractual relationship with students in regards to IP in comparison to employer-employee agreements unless it is for a particular project.
Shared values	Not all academics are of the same opinion in regards to IP protection. Some academics think it is more important for students to build their own profile.
Style	VicLink have a small team, but are working hard to engage with staff at the School of Design.
Staff	VicLink organises boot camps and other presentations about IP and have played an educational role at the School of Design for the past 1 ½ years. An additional staff member was hired at VicLink specifically for design and media.
Skills	Academics potentially have medium to little IP knowledge and skills to answer questions about IP or to have a basic initial conversation with students during the preliminary and IP strategy and planning processes.

Table 6 - McKinsey 7S - School of Design on IP readiness

The analysis shows that there is a strong relationship with key stakeholders required if the School of Design want to raise awareness with their existing resources and capability.

Recommendations

Every stakeholder interviewed plays an important role during the IP protection process. Without awareness the process is not as effective as it could be to support the notion of IP being an economic driver. To encourage students to protect their IP, knowledge needs to be built up. A collaborative approach needs to be taken led by the educators with the goal for students being able to make an informed decision about IP protection.

The analysis highlighted the steps involved to apply for a patent. The first two steps, the preliminary search as well as the IP strategy and planning step are important to be included in the design process because they are valid for every IP type being it a patent, design right, trademark or copyright. It is here where students require understanding about the IP types, searching and IP strategies. The steps that follow on involve legal and commercialisation activities and taking action on truly protecting the IP with the intention to commercialise the product. This is where IPONZ, VicLink and patent attorneys are typically involved.

The School of Design could lead an initiative to raise not only awareness, but also understanding amongst design and media students. The leadership keypad could be used to build capability from an internal perspective within the School of Design to teach students how to make good decisions about IP protection in the future, but also collaborate with key external stakeholders on the actions that need to be taken if the decision is made to commercialise the product. This cannot be led by any of the other stakeholders as they have particular roles and interests during the process and also do not have direct contact with students to encourage them. Through working together with external stakeholders like IPONZ, patent attorneys as well as VicLink, the School of Design can make use of great resources and knowledge base. A combined strategy could not only be beneficial for Victoria

University, but also for patent attorneys, IPONZ as well as students' future employers and the New Zealand economy.

Some of the key messages, ideas and suggestions that have been raised during the interviews were:

1) Options to build understanding could include to make IP part of the curriculum, to teach IP as part of an existing course or to teach IP as part of an assignment.
2) Teach students about the importance of an IP strategy, IP types, processes and risks and where they could add most value as part of this process.
3) IPONZ may be able to provide collateral material for the classroom with references on where to go and the types of IP rights covered in New Zealand.
4) Teach students how to search the database and do a preliminary search and to understand the IP landscape as well as help them understand the information included in a patent.
5) As part of an assignment students could make an actual application for a design right and IPONZ could come to class to talk about the applications.

Conclusions

The literature review highlights that IP is an important driver for the economy. There are many initiatives to raise awareness to promote IP protection; however a review of the New Zealand system also recognised that awareness alone is not enough, but understanding is required to support the notion of economic growth.

The research identified that there is a gap in awareness and understanding about IP with the students studying at the School of Design. The student survey revealed that students had little knowledge or understanding about the IP types, the processes, the databases or who to contact. The perceptions about costs and duration were also widely spread. IP professionals and applicants interviewed explained the complexities involved in applying for a patent and illuminated the perceptions on the process, costs and duration. Although there are some complexities and depending on the technology IP protection can be costly, it should not be a barrier for students to think about IP protection.

In addition the student survey also showed that most students believe that IP rights are important to good design. The analysis revealed that there are steps involved where students can take an active role in the IP protection process. Namely the preliminary search and the IP strategy and planning steps, which should be included as part of the overall design process. Making these steps part of the university's curriculum will encourage students to think actively about IP protection. They will learn how to make informed decisions about their Intellectual Property and know what steps to take to protect it.

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Appendix A – Student Survey

Survey on Intellectual Property (IP)

Thank you for taking the time to fill in this survey. The results will help me prepare my business research paper for my MBA degree on IP awareness and the processes required to apply for IP rights in New Zealand. The survey is **anonymous**. Please fill in the survey based on your best knowledge. This is not a test so a simple 'Don't know' will be fine. Thanks again for your help! If you have any questions about the survey please contact Martina Hill (mas.hill@yahoo.co.nz).

A) Questions about you

1. How old are you? Please state your age: _____
2. What is your gender? Please tick: ☐ Female ☐ Male
3. What year of study are you in? Please tick: ☐ 1st Year ☐ 2nd Year ☐ 3rd Year ☐ Masters
4. Have you applied for a patent, design right or a trade mark before? Please tick: ☐ Yes ☐ No
5. What is the importance of IP for a good design? Please tick (1 being of low importance and 7 being of high importance):

1	2	3	4	5	6	7
Low						High

B) IP Awareness

6. Indicate the level of your knowledge for the following IP rights. Please tick (1 being little knowledge and 7 being very good knowledge about the IP right):

Patent Rights:

1	2	3	4	5	6	7
Little						Very Good

Copyright:

1	2	3	4	5	6	7
Little						Very Good

Design Rights:

1	2	3	4	5	6	7
Little						Very Good

Trade-Marks:

1	2	3	4	5	6	7
Little						Very Good

7. When does a copyright for computer generated work expire? Please tick:
   ☐ After 10 years ☐ After 100 years ☐ None of the listed options
   ☐ After 50 years ☐ Never ☐ Don't know
8. How would you protect a company logo? Please list: _____
9. How would you protect a new furniture design? Please list: _____
10. Do you recognise any of the following? Please tick the corresponding boxes:
    ☐ IPONZ ☐ MADRID PROTOCOL ☐ NZIPA ☐ PROVISIONAL PATENT
    ☐ VICLink ☐ EPO ☐ PATENTS ACT ☐ CALLAGHAN INNOVATION
    ☐ WIPO ☐ DESIGNS ACT ☐ PCT ☐ Don't know

C) IP Process and Costs

11. What are the steps taken to apply for a patent? Please outline the steps you would take:
    Step 1: _____ Step 4: _____
    Step 2: _____ Step 5: _____
    Step 3: _____ Step 6: _____ ☐ Don't know
12. How would you rate the application process for a patent in New Zealand? Please tick (1 being easy and 7 being very difficult):

1	2	3	4	5	6	7
Easy						Very difficult

☐ Don't know

13. How long does it take to receive the IP right from the moment the application has been submitted? Please state the duration: _____
14. How much do you think would it cost to apply for a patent in New Zealand? Please tick:
    ☐ Less than NZD 1,000 ☐ Between NZD 5,000 and 15,000
    ☐ Between NZD 1,000 and 5,000 ☐ More than NZD 15,000
15. Have you researched a patent database before? Please tick: ☐ Yes ☐ No
    If yes, what was the name of the database? Please list: _____
16. Can you name any patent attorneys? Please list: _____
17. When would you use a patent attorney? Please tick the corresponding boxes:
    ☐ To apply for IP rights ☐ For proceedings about IP rights ☐ None of the listed options
    ☐ To sell/license IP rights ☐ To maintain IP rights ☐ Don't know

Appendix B – Student Survey Research Questions

The following tables outline the research questions that were answered through the survey. The first tables address the questions to confirm or reject hypothesis 1 and the second table hypothesis 2:

ID	Research Question	Variables
1.1	What is the perceived knowledge of students?	Answer of level of knowledge per IP right type on a scale of 1 to 7
		Answer on specific questions about IP use to confirm level of knowledge (right or wrong answers)
1.2	Are there differences with different profile groups?	Answers on age and gender (number, male / female)
		Student area (year and course)
1.3	How important is IP for students?	Feedback from students on how important they find IP rights on a scale of 1 to 7

Table 7- Questions to answer hypothesis 1 for quantitative research

ID	Research Question	Variables
2.1	Have students been involved in applying for IP rights before?	Yes or No answer
2.2	How knowledgeable are the students at the School of Design about the process that needs to be followed to apply for IP rights?	Level of perceived complexity and knowledge about current process on a scale of 1 to 7. Answer on what steps need to be taken to apply for IP rights. Open text.
2.3	What is students' perception about costs when it comes to applying for IP?	Answer on average costs to apply for IP Rights. Number in New Zealand Dollars
2.4	What is students' perception about the duration for applying for IP?	Answer on duration in months to apply for IP rights.
2.5	What is students' perception about the role patent attorneys play?	Answer on when students would make use of patent attorney (application, sale, proceedings, maintaining of IP rights) List of any names of patent attorneys.
2.6	How knowledgeable are students about IP terminology?	Tick boxes for a list of various terms

Table 8- Questions to answer hypothesis 2 for quantitative research

Appendix C – Student Survey Results Detail

Profile

Row Labels	Female	Male	Grand Total
Industrial Design	**53**	**79**	**132**
1st	18	26	44
2nd	15	22	37
3rd	20	30	50
Masters		1	1
Media Design	**18**	**26**	**44**
1st	1		1
2nd	10	14	24
3rd	6	9	15
Masters	1	3	4
Grand Total	**71**	**105**	**176**

Table 9: Student Profile – Count

Importance of IP

Row Labels	Industrial Design	Media Design	Grand Total
Don't know	3	1	4
1	1	1	2
2	3	2	5
3	6	1	7
4	16	7	23
5	39	6	45
6	37	14	51
7	25	9	34
Grand Total	**130**	**41**	**171**

Table 10: IP Importance by Course - Count

Row Labels	1st	2nd	3rd	Masters	Grand Total
Don't know	1	3	0	0	4
1	1	0	1	0	2
2	1	1	3	0	5
3	2	1	4	0	7
4	9	7	6	1	23
5	9	20	15	1	45
6	13	17	19	2	51
7	9	9	15	1	34
Grand Total	**45**	**58**	**63**	**5**	**171**

Table 11: IP Importance by Year - Count

Importance of IP Graphic

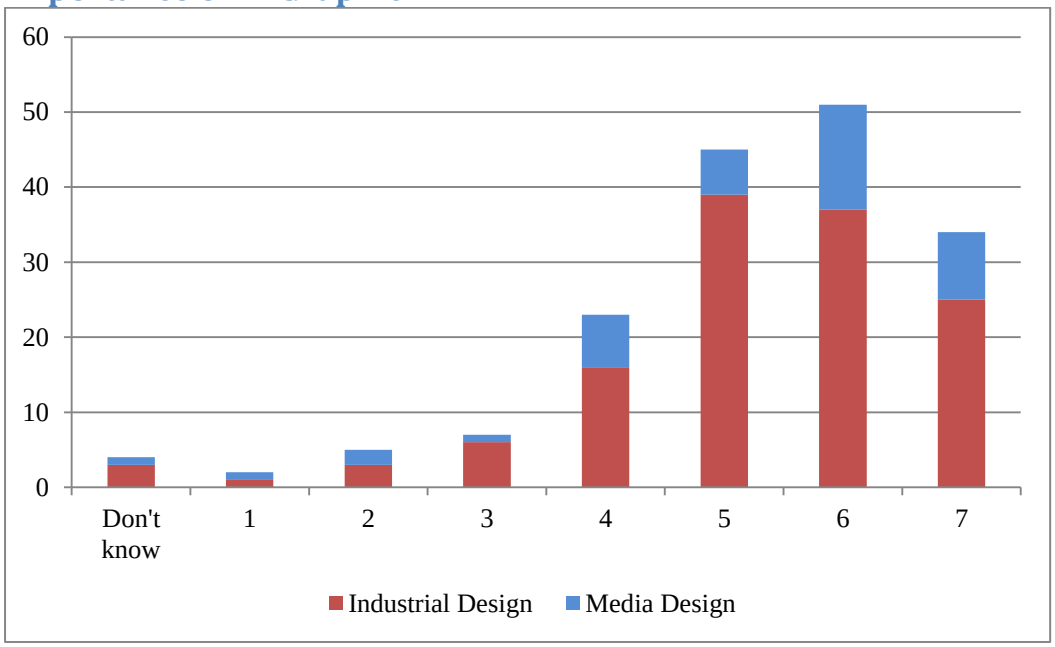

Figure 5: Number of responses on a scale of 1-7 - Count

Awareness about IP rights

	Sum of Copyright	Sum of Patent Rights	Sum of Design Rights	Sum of Trademark
Industrial Design	**131**	**131**	**131**	**131**
1	23	40	42	26
2	25	29	31	27
3	20	23	16	25
4	23	19	27	31
5	21	13	8	13
6	15	4	4	8
7	4	3	3	1
Media Design	**43**	**43**	**43**	**43**
1	7	15	14	11
2	5	11	10	9
3	8	6	7	11
4	5	7	8	6
5	7	2	2	3
6	9	1	1	3
7	2	1	1	0
Grand Total	**174**	**174**	**174**	**174**

Table 12: Responses per IP right type and course - Count

Awareness about IP rights by type

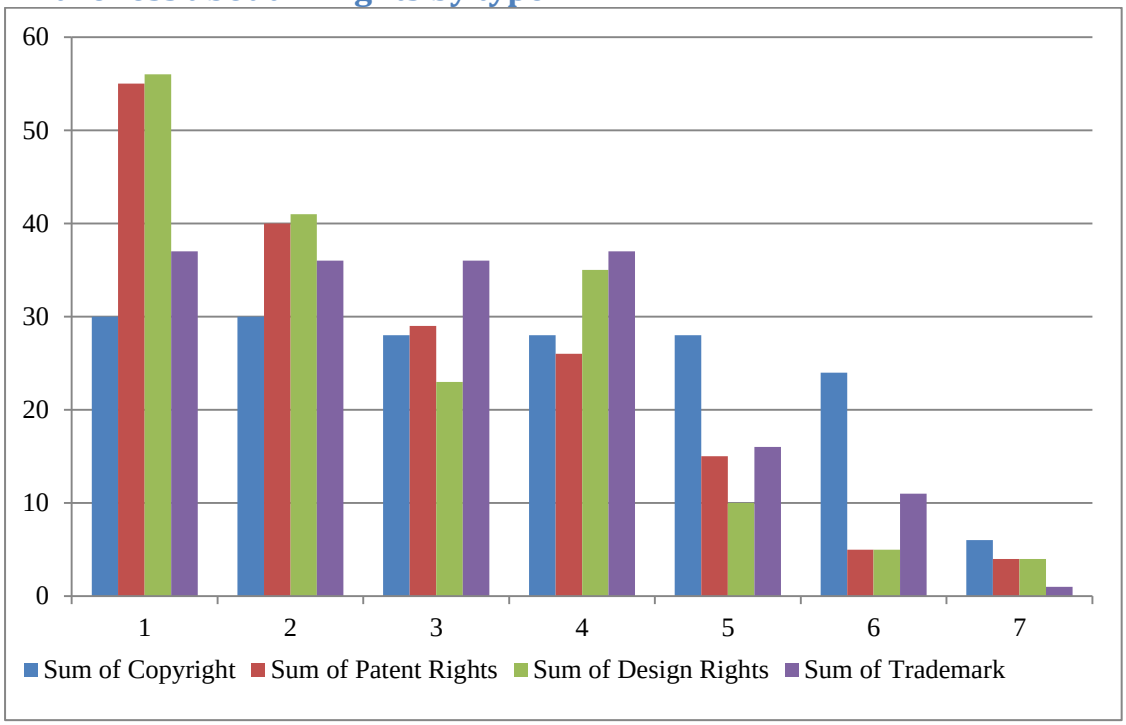

Figure 6: Number of student responses on a scale of 1 – 7 by IP type - Count

All per year Rating	1st	2nd	3rd	Masters	Total
1	36	71	65	6	178
2	48	37	60	2	147
3	13	46	53	4	116
4	40	41	39	6	126
5	24	21	22	2	69
6	13	18	14	0	45
7	6	6	3	0	15
Grand Total	**180**	**240**	**256**	**20**	**696**

Table 13: IP Awareness Responses Total by Year - Count

Rating	Female Patent	Male Patent	Female Copyright	Male Copyright	Female Design Right	Male Design Right	Female Trademark	Male Trademark	Female Total	Male Total
1	27	28	11	19	20	36	12	25	70	108
2	18	22	11	19	18	23	15	21	62	85
3	11	18	8	20	8	15	18	18	45	71
4	8	18	13	15	20	15	20	17	61	65
5	5	10	12	16	2	8	3	13	22	47
6		5	13	11	1	4	3	8	17	28
7	2	2	3	3	2	2		1	7	8
Grand Total	**71**	**103**	**71**	**103**	**71**	**103**	**71**	**103**	**284**	**412**

Table 14: IP Awareness Responses by IP right type by Gender - Count

IP Awareness for all IP rights by Gender

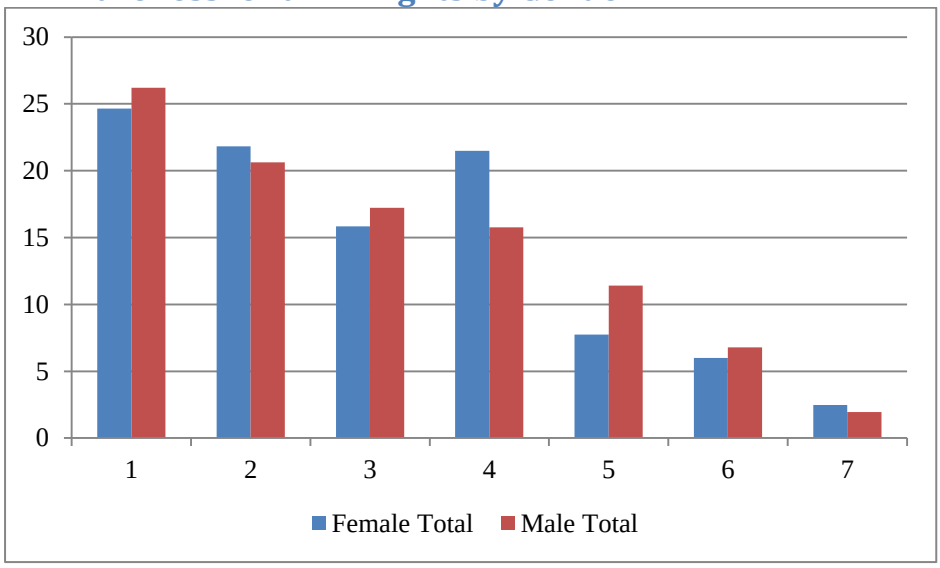

Figure 7: Percentage of total responses on a scale of 1 – 7 by Gender

IP Awareness for all IP rights by Year

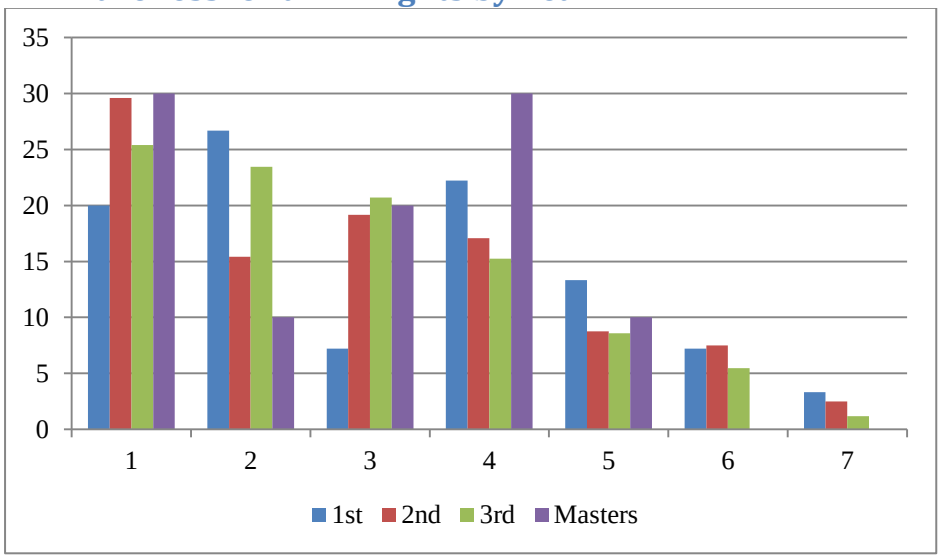

Figure 8: Percentage of total responses on a scale of 1 – 7 by Year

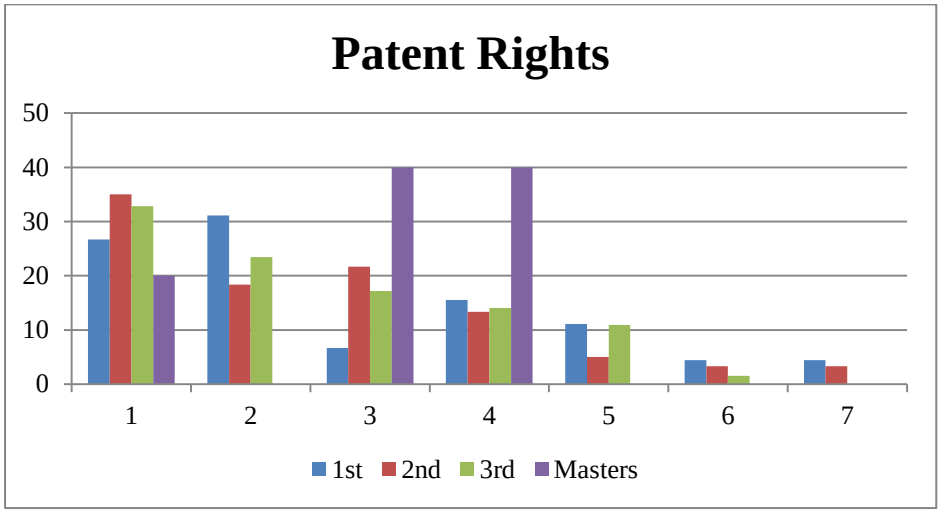

Figure 9: Percentage of total responses for Patent Rights on a scale of 1 – 7 by Year

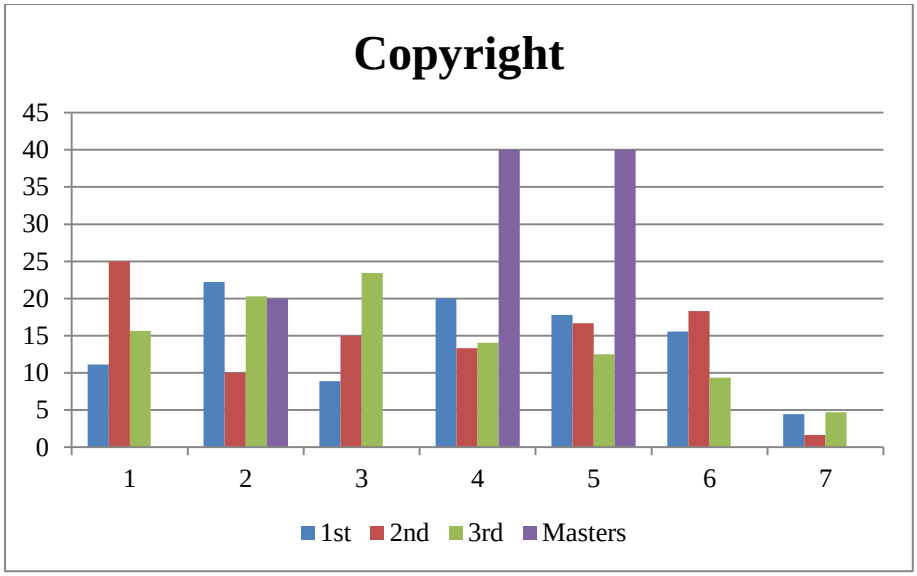

Figure 10: Percentage of total responses for Copyright on a scale of 1 – 7 by Year

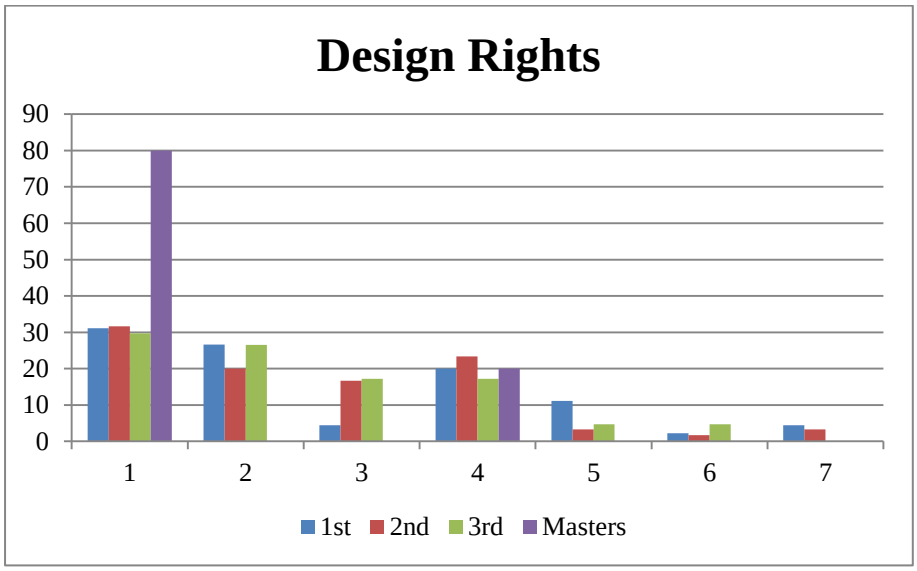

Figure 11: Percentage of total responses for Design Rights on a scale of 1 – 7 by Year

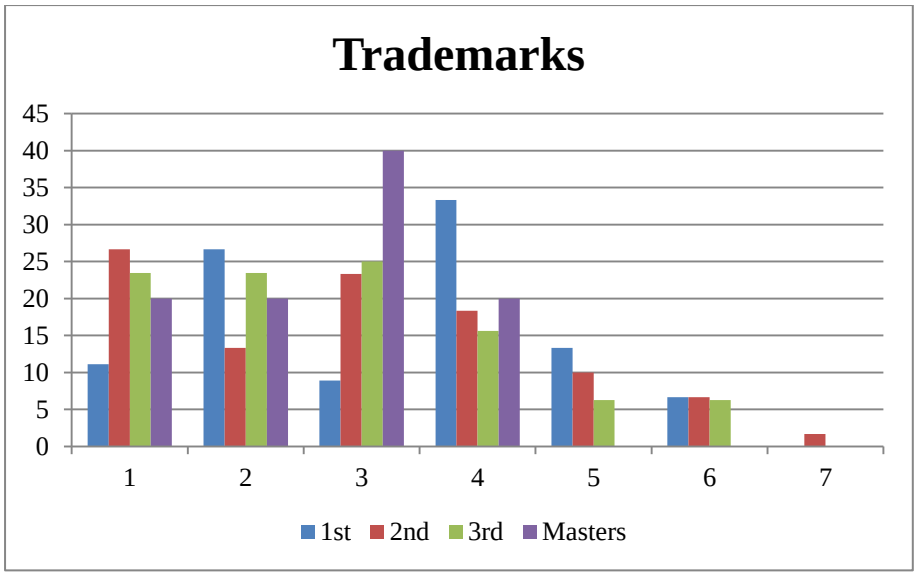

Figure 12: Percentage of total responses for Trademarks on a scale of 1 – 7 by Year

IP Knowledge

When does Copyright expire for Computer generated designs?

11% knew the answer 50 years[57].

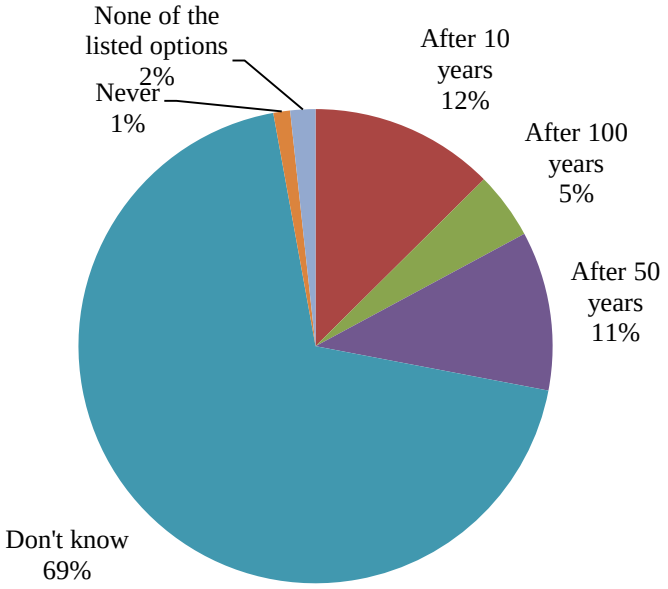

Figure 13: Copyright for computer generated designs, Total responses in Percentage.

Description	1st	2nd	3rd	Masters	Grand Total
After 10 years	5	8	9		22
After 100 years	2	1	5		8
After 50 years	3	10	5	1	19
Don't know	33	39	46	3	121
Never	1	1			2
None of the listed options	1	2			3
Grand Total	**45**	**61**	**65**	**4**	**175**

Table 15: Number of Responses Copyright question by Year - Count

[57] Copyright Act 1994, 22 Duration of copyright

How to protect a company logo?

9% Trademark, copyright perfect answer, 26% Copyright correct, 31% Trademark correct

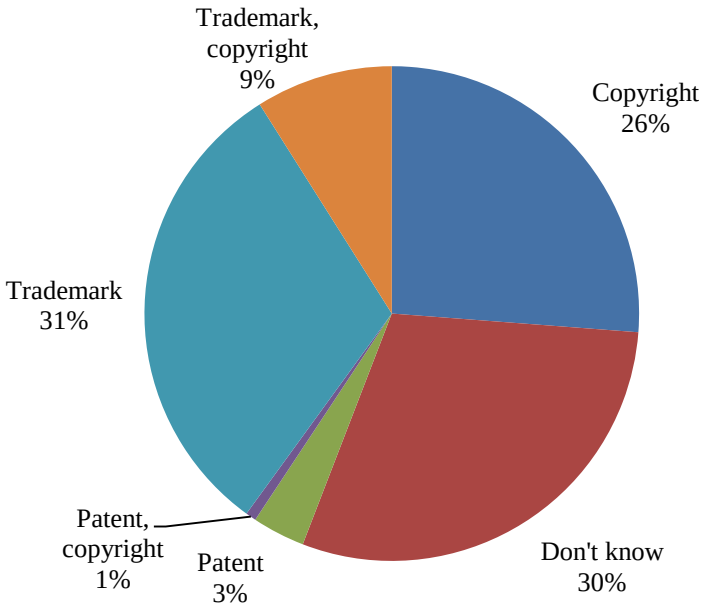

Figure 14: Trademark and Copyright for Company Logo protection, Total responses in percentage

Description	Industrial Design	Media Design	Grand Total
Copyright	30	8	38
Don't know	35	8	43
Patent	3	2	5
Patent, copyright	1		1
Trademark	37	8	45
Trademark, copyright	8	5	13
Grand Total	**114**	**31**	**145**

Table 16: IP Knowledge Number of responses Trademark Question by Course - Count

Row Labels	1st	2nd	3rd	Masters	Grand Total
Copyright	12	12	13	1	38
Don't know	9	16	18		43
Patent	1	1	3		5
Patent, copyright		1			1
Trademark	11	14	17	3	45
Trademark, copyright	2	7	3	1	13
Grand Total	**35**	**51**	**54**	**5**	**145**

Table 17: IP Knowledge Number of responses Trademark Question by Year - Count

How to protect a new furniture design?

11% Copyright, 23% Design right is correct.

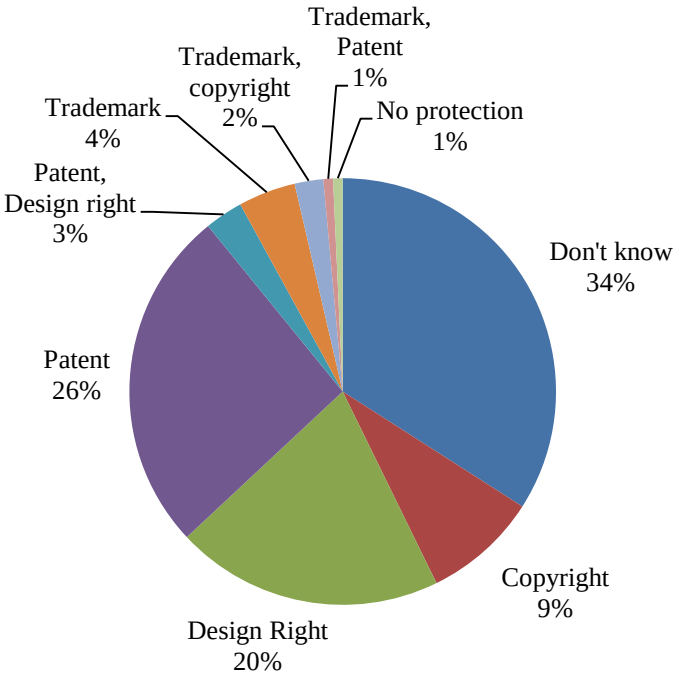

Figure 15: Design right and copyright for new Furniture Design, Total responses in Percentage.

Row Labels	Industrial Design	Media Design	Grand Total
Copyright	11	1	12
Design Right	23	5	28
Don't know	38	9	47
No protection		1	1
Patent	27	9	36
Patent, Design right	4		4
Trademark	4	2	6
Trademark, copyright	2	1	3
Trademark, Patent	1		1
Grand Total	**110**	**28**	**138**

Table 18: IP Knowledge Number of responses Design Right Question by Course - Count

Row Labels	1st	2nd	3rd	Masters	Grand Total
Copyright	3	2	7		12
Design Right	9	8	9	2	28
Don't know	10	20	17		47
No protection			1		1
Patent	8	11	14	3	36
Patent, Design right		3	1		4
Trademark	2	1	3		6
Trademark, copyright	1	1	1		3
Trademark, Patent		1			1
Grand Total	**33**	**47**	**53**	**5**	**138**

Table 19: IP Knowledge Number of responses Trademark Question by Year - Count

Do you know any of these?

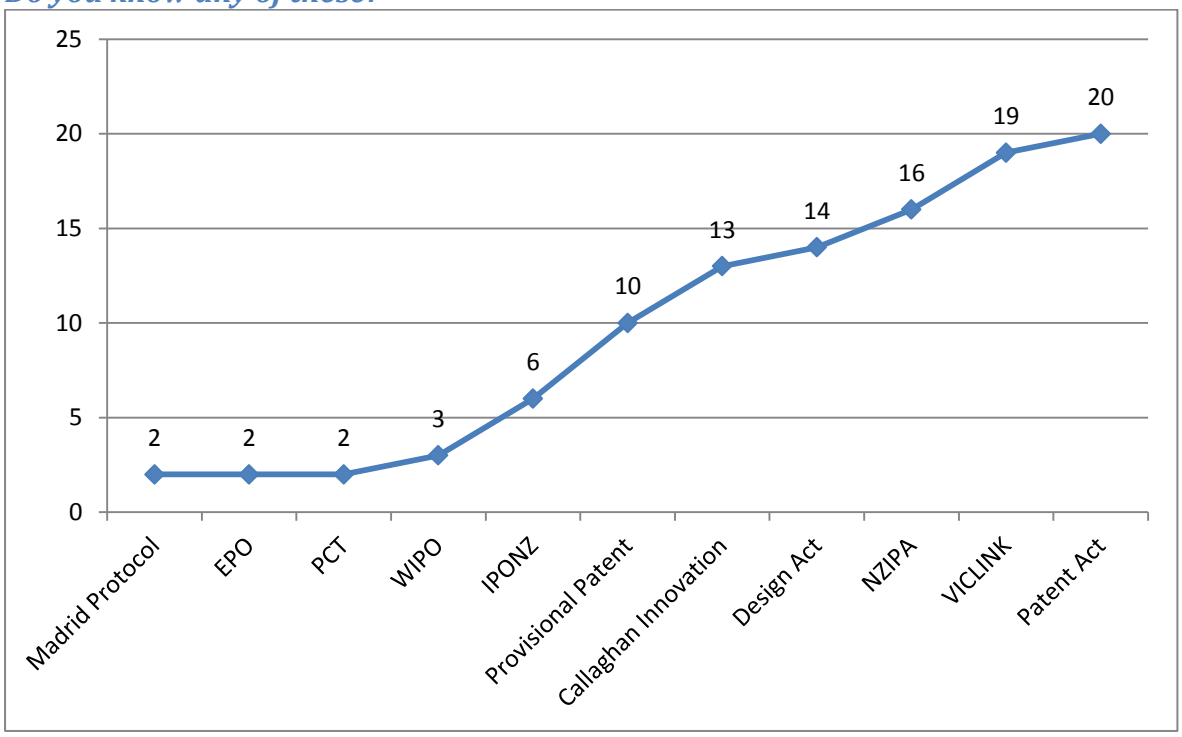

Figure 16: Number of responses of recognised terms - Count

IP Process, Duration and Costs

What are the steps taken to apply for a patent?

Categories	Responses
Contact Help	10
Documentation	1
Follow Patent Process	8
Research	2
Research and Apply	2
Research and Contact Help	4
Grand Total	**27**

Table 20: IP Application Steps – Most common answers - Count

Detailed responses:

Category	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Contact Help	Approach help	Research existing patents	File for a patent			
Contact Help	Assimilate drawings for patent	Contact VicLink	Discuss terms of agreement	Discuss compromise	Come to agreements	Start patent
Contact Help	Contact VicLink					
Contact Help	Go see someone	Patent				
Contact Help	Go to a Patent office	Don't know				
Contact Help	Go to Patent office with a patent lawyer					
Contact Help	Lawyer	Application				
Contact Help	Patent office	Lawyer up!	Don't know			
Contact Help	Talk to a patent lawyer					
Contact Help	Talk to my parents/consultants					
Documentation	Documenting everything					
Follow Patent Process	Apply	Pay	Don't know			
Follow Patent	Apply for one using WIPO	Once successful I would have the patent				

Category	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Process		for 140 countries				
Follow Patent Process	Documentation	Application	Legal			
Follow Patent Process	Find patenting company online	Contact company	Send product info	Fill in forms	Pay for it	Complete
Follow Patent Process	Generate idea	Formulate evidence	Take to patent office	Approval or charge needed		
Follow Patent Process	Prepare a clear plan	Submit plan	Wait for any objections	Work through objections		
Follow Patent Process	Read Protocols	Write paper	Get certificated	Apply		
Follow Patent Process	Write a letter					
Research	Google					
Research	Google patents	Don't know				
Research and Apply	Go online	See how its done	do it	Don't know		
Research and Apply	Google	Apply for patent				
Research and Contact Help	Google	Find something online	Apply	Probably get a lawyer	Spend heaps of money	
Research and Contact Help	Google how to get one	Apply or contact someone				
Research and Contact Help	Research online for other patents	Have Viclink tdo the same	Rely on VicLink			
Research and Contact Help	Research Patents (current)	Contact Patent Office (lawyer)	Further the steps	Apply	Pay Pay Pay	Hope

Table 21: IP Application Steps – Detailed responses

Application Process Complexity

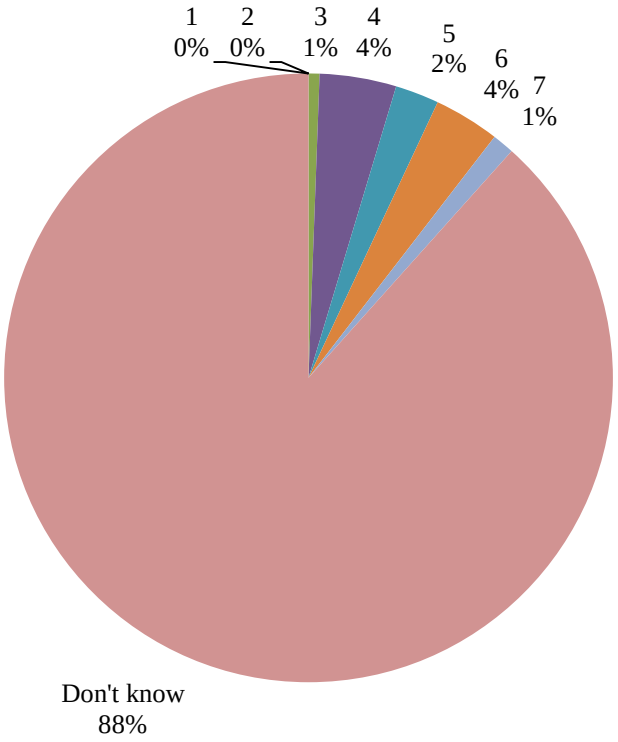

Figure 17: IP Process Complexity –Percentage by Rating

12% of respondents rated the processes between 3 and 7.

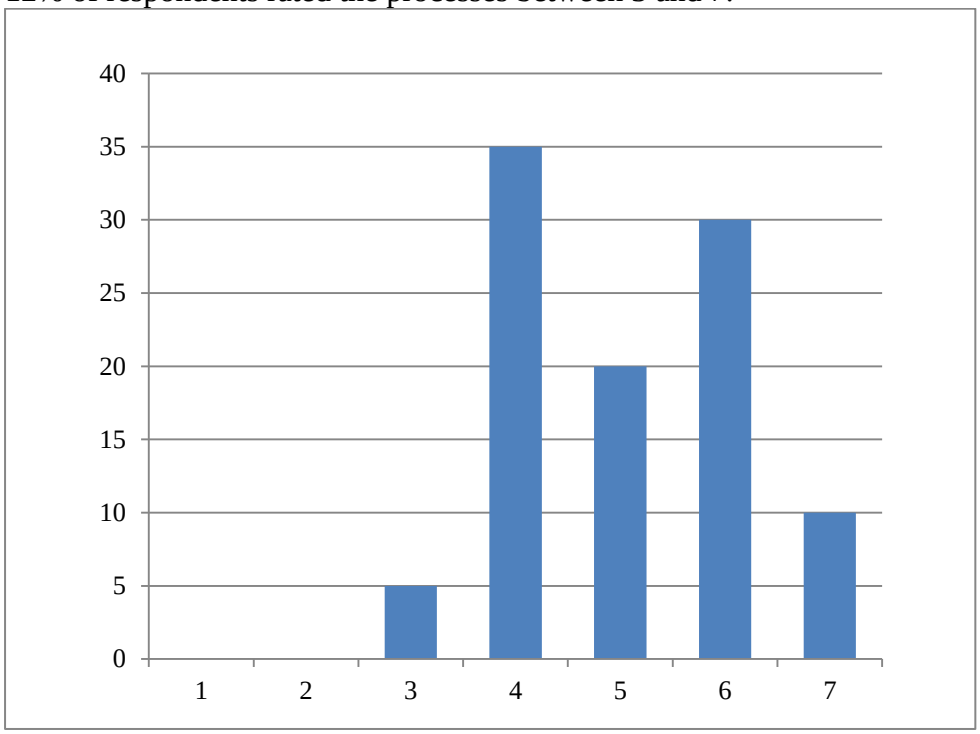

Figure 18: IP Application Process rated based on complexity on a scale of 1-7 in Percentage

How long does the application process take?

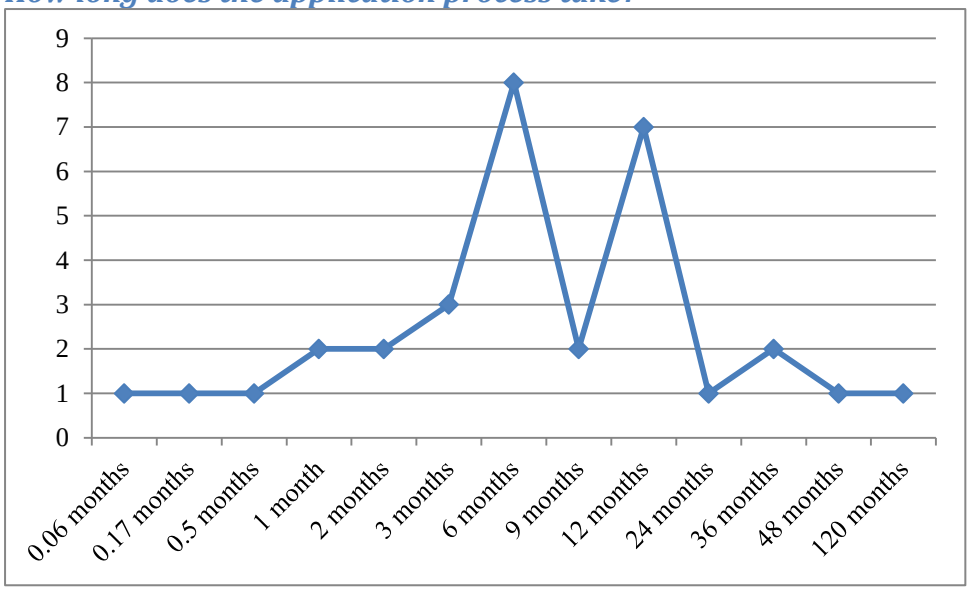

Figure 19: IP Application Duration in Number of respondents - Count

32 responses, 70 respondents didn't know the answer.
Correct answer between 3-4 months

Mean	13.42906
Standard Error	3.965122
Median	6
Mode	6
Standard Deviation	22.43011
Sample Variance	503.11
Kurtosis	16.97866
Skewness	3.82747
Range	119.94
Minimum	0.06
Maximum	120
Sum	429.73
Count	32
Confidence Level(95.0%)	8.086919

Table 22: IP Application Duration – Descriptive Statistics of responses

Costs

30% of respondents thought a patent application costs between $5000 and $15000.

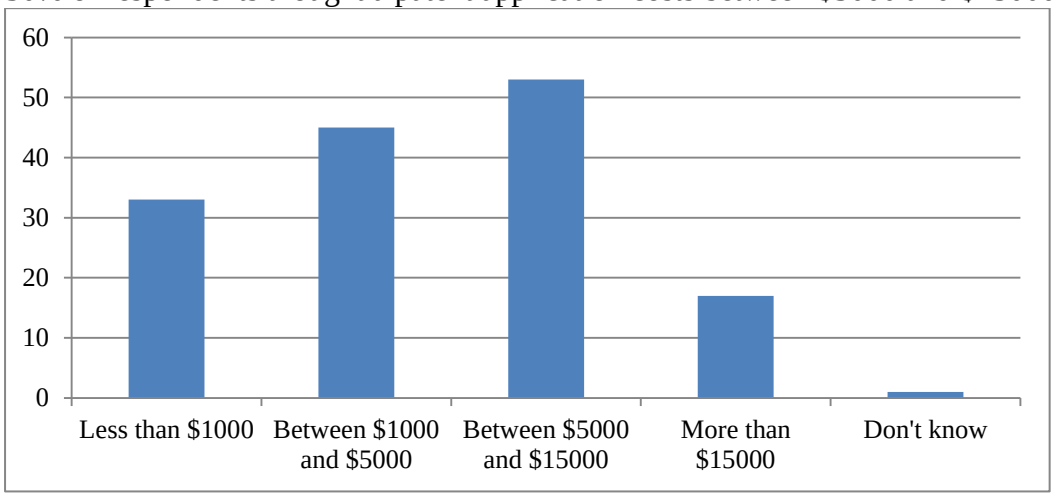

Figure 20: IP Application Costs in Number of respondents - Count

Row Labels	1st	2nd	3rd	Masters
Less than $1000	10	14	9	
Between $1000 and $5000	14	16	14	
Between $5000 and $15000	10	16	23	5
More than $15000	2	4	11	
Total Responses	**36**	**50**	**57**	**5**

Row Labels	1st	2nd	3rd	Masters
Less than $1000	28	28	16	
Between $1000 and $5000	39	32	25	
Between $5000 and $15000	28	32	40	100
More than $15000	6	8	19	
Total Percentage	**100**	**100**	**100**	**100**

Row Labels	1st	2nd	3rd	Masters
Less than $1000	7	10	6	0
Between $1000 and $5000	10	11	10	0
Between $5000 and $15000	7	11	16	3
More than $15000	1	3	8	0

Overall Percentage of 143 Responses

Table 23: IP Application Cost by Year

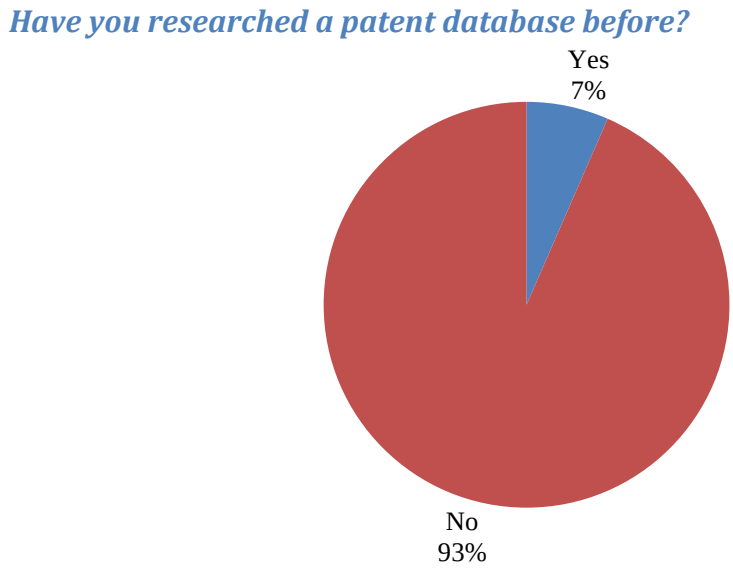

Figure 21: IP Patent Database Search in Percentage of responses

Databases searched
Brazilian Patents (NPBR)
Govt website
Through WIPO
Can’t remember
Google Patents
Google Patents
Can’t remember
Can’t remember
Google Patents
Google Patents
Google Patents

Table 24: Most IP Patent Databases searched by students

Name of Patent attorney

Row Labels	Count Name of Patent attorney
AJ Park	1
Callaghan Innovation	1
Don't know	68
Grand Total	**70**

Table 25: Patent Attorney named by students

When would you use a patent attorney?

In % of 167 responses

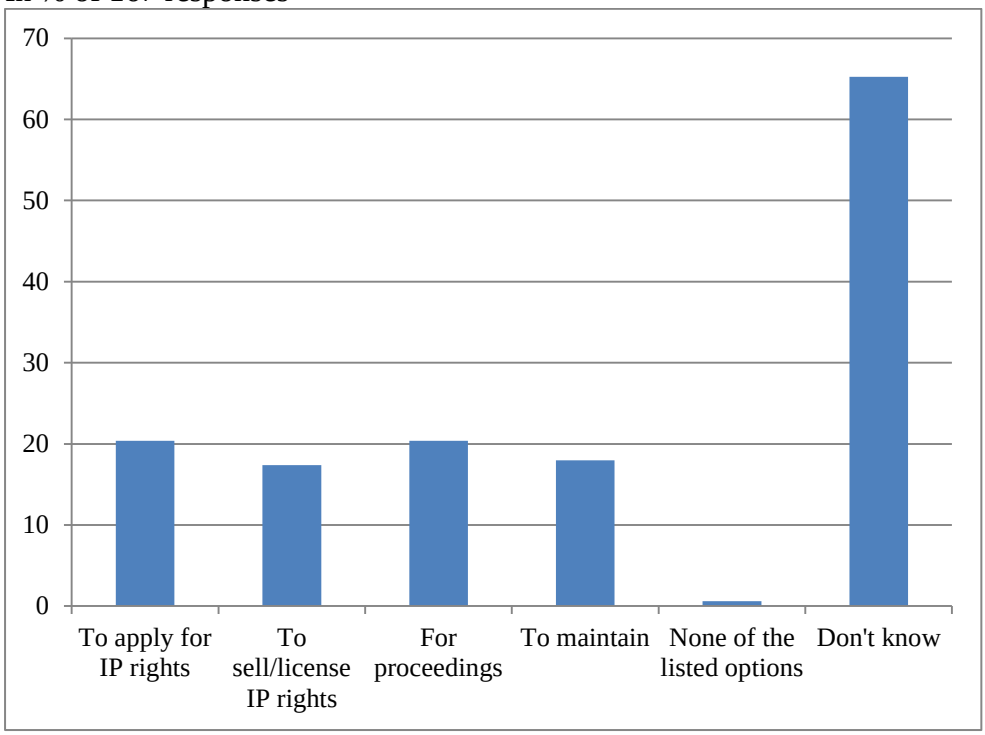

Figure 22: Student use of Patent Attorneys in Percentage of responses

Appendix D – Interview Consent Form

Personal Interview

CONSENT FORM

I agree to be interviewed by Martina Hill for the purposes of her MBA Business Research Project and consent to the use of my opinions and information. I understand that I may withdraw from the research before 10 October 2014. I am also aware that the findings derived from this study will be published in the Victoria University Library and excerpts may be included in academic publications and/or academic conferences.

I have been informed of the purpose of the research and the confidentiality conditions.

I understand that raw data collected during the interview will only be available to the researcher, Martina Hill, and her supervisor, Professor Stephen Cummings.

Name: …… Date: ……

Signed: ……..

If you would like a copy of the research summary please add your email/address below:

……..

Appendix E – Interview Questions

INTERVIEW QUESTIONS

Patent Applicants and Patent Holders

A) Questions about the patent holder / applicant

a) How important is IP for a good design on a scale of 1 to 7 (1 being low and 7 being high) and why?
b) How would you rate yourself in regards to the level of your knowledge in regards to Patent rights? (1 being low, 7 being high)

B) Questions about the patent application

a) How does the patent application process work? How would you describe it? What were the steps you took to apply for the patent?
b) How would you rate the application process for a patent in New Zealand (1 being low and 7 being high) and why?
c) Can the process be broken down in functional areas (i.e. managerial and legal)?
d) How would you rate the use of the patent database? Does it take long to find your way around the patent database?
e) What is the average duration to get a patent granted? How long did it take you?
f) What is the average cost of a patent in total? Is there a breakdown of the cost? How much did it cost you?

C) Questions about the role of patent attorneys

a) How important is the role of the patent attorney during the application process and why?
b) What were particular activities that you required help with?
c) What were activities that you could have completed or did complete yourself?

D) Questions about the role of IPONZ

a) What role did IPONZ play during the application process?
b) How would you rate the information provided by IPONZ (1 being low and 7 being high) and why?

E) Reasons & Recommendations

INTERVIEW QUESTIONS

Intellectual Property Office New Zealand

A) Questions about IP

a. How important is IP for a good design on a scale of 1 to 7 (1 being low and 7 being high) and why?
b. How would you rate yourself in regards to the level of your knowledge in regards to Patent rights? (1 being low, 7 being high)

B) Questions about the patent application

a. How does the patent application process work? How would you describe it? What were the steps you took to apply for the patent?
b. How would you rate the application process for a patent in New Zealand (1 being low and 7 being high) and why?
c. Can the process be broken down in functional areas (i.e. managerial and legal)?
d. How would you rate the use of the patent database? Does it take long to find your way around the patent database?
e. What is the average duration to get a patent granted?
f. What is the average cost of a patent in total? Is there a breakdown of the cost?

C) Questions about the role of IPONZ

a. What is the role of IPONZ during the application process?
b. Who is IPONZ's average client (i.e. businesses, agents, private inventors)?
c. How often is IPONZ requested for professional services, what are the main reasons?
d. What are particular activities that most applicants require help with from IPONZ?
e. Which activities can be completed by applicants themselves?
f. What information do you provide to applicants and attorneys?

D) Questions about the role of patent attorneys

a. How important is the role of the patent attorney during the application process and why?
b. What do you think the role is of patent attorneys for applicants? For IPONZ?
c. Which areas would you suggest a patent attorney for?
d. What skills would be required to allow an applicant to go through the entire process?

E) Reasons & Recommendations

INTERVIEW QUESTIONS

VicLink and Patent Attorneys

A) Questions about IP

a. How important is IP for a good design on a scale of 1 to 7 (1 being low and 7 being high) and why?
b. How would you rate yourself in regards to the level of your knowledge in regards to Patent rights? (1 being low, 7 being high)

B) Questions about the patent application

a. How does the patent application process work? How would you describe it? What were the steps you took to apply for the patent?
b. How would you rate the application process for a patent in New Zealand (1 being low and 7 being high) and why?
c. Can the process be broken down in functional areas (i.e. managerial and legal)?
d. How would you rate the use of the patent database? Does it take long to find your way around the patent database?
e. What is the average duration to get a patent granted?
f. What is the average cost of a patent in total? Is there a breakdown of the cost?

C) Questions about the role of patent attorneys

a. What is your role as patent attorney/VicLink for applicants?
b. Which areas would you suggest a patent attorney/VicLink for?
c. What are the skills required for a patent attorney to complete an application?
d. What are some of the activities that you ask your clients to complete?

D) Questions about the role of IPONZ

a. What is the role of IPONZ during the application process?
b. How often do you refer to IPONZ for information and what is the main reason?
c. How useful do you find the information from IPONZ (1 being low and 7 being high) to complete an application and why?
d. What updates and guidance does IPONZ provide?
e. How often do you request professional services from IPONZ and why?

Reasons & Recommendations

Appendix F - Overview of the steps described by the students and interviewees

Type	Step	Students (Combined answers)	Applicants	VicLink	Patent Attorneys	IPONZ
Preliminary Search	1	Generate idea, Google or Search patents	Initially coming up with the idea and getting confirmation from other people or doing a quick search on the idea online to review density of the market.		Ask client to do preliminary searching and take the results to the patent attorney	Information on databases on IPONZ website and guidelines on how to search
IP Strategy & Planning	2	Prepare a clear plan, Talk to a patent lawyer / VicLink Read Guidelines and Protocols, find patenting company online	Approaching patent attorney/VicLink to plan filing a patent application	Identify an invention through formal structured invention disclosure process – this is the inventor or researcher contacting VicLink with an idea	Decision whether to file for a patent The patent attorneys interviewed agreed that the earlier they are involved, the better. This is because they can add value early on to give advice about the direction to take when making decisions about IP.	Information on types of IP on IPONZ and business.govt.nz website
Preparation	3	Document everything	Developing idea into design and start making models, products and systems			
	4		Research existing patents and note down differences, defining its novelty. Potentially hire an external company or patent attorney to complete a full search	VicLink reviews novelty, inventiveness and patentability. Prior art search and context Review potential strategies i.e. licensing, selling, spin-off company) and potential commercial partners.	Potentially full search by patent attorney (prior art and freedom to operate searching)	
Provisional Patent Application	5	Fill in forms	Draft patent (patent attorney/VicLink) and provide background information to patent attorney and reviewing draft patent application	Contact IP strategist (qualified patent attorney) to draft patent or if it is not too technical find an external patent attorney with the subject matter expertise. Request information from researcher and package it together for patent attorney Patent attorney drafts provisional patent application and review by VicLink	Patent attorney to draft provisional patent application It is not recommended that applicants do the drafting themselves because if the patent is drafted too narrow and the invention has been made publically available then it is too late to file for a broader patent.	

Type	Step	Students (Combined answers)	Applicants	VicLink	Patent Attorneys	IPONZ
	6	Apply and pay fee	Patent attorney/VicLink files provisional application	Patent attorney usually does the actual filing of the provisional patent	File Provisional Patent Application This application must be completed before any publication is done. The documentation does not get examined by IPONZ. The priority date determines when the complete application must be filed and is the date when the novelty will be assessed. The provisional application usually does not state the claims yet that the patent will cover.	Provide Priority Data
Complete Specification	7	Formulate evidence, discuss terms of agreements	Make any adjustments required during the 12 month period and confirm whether the invention is commercially valuable, find partners and define a roadmap.	Negotiate contracts with partners or allocate funding for further research depending on the IP	Option to make any changes to the invention before filing complete specification and ability to commercialise or test the market of the invention during the 12 month period.	
	8		Filing of complete patent		After 12 months file full specification including any additional changes and claims that were made or go to step 11	Apply A New Zealand patent application must be filed at IPONZ. A patent application must be accompanied by a patent specification in which the invention is described.
IPONZ Publication	9					Publication A patent specification is published on the IPONZ website 18 months from the earliest claimed priority date of the application. Documents such as examination reports and applicant responses will also be published on the IPONZ website from this date onwards. Publication does not guarantee that a patent will be granted.
PCT Application and National Phase	10	Once successful option to apply in 140 countries using WIPO			Presuming applicant goes offshore, decision to file a PCT application which allows an applicant to file in 148 countries	
	11				After another 18 months decision which countries to file in and enter national phase and submit full specification in the strategically selected countries.	
Examination	12					Applicant Request Examination in New Zealand

Type	Step	Students (Combined answers)	Applicants	VicLink	Patent Attorneys	IPONZ
	13				Patent attorney deals with local agents to file applications in selected countries.	
	14	Wait and deal with any objections			Deal with any objections that are raised by patent office(s) from the examinations. This process can take years.	Examination report Examiners then write a letter about where there are possible efficiencies or where it meets certain requirements, which is then sent to the patent attorney. The patent attorney takes this to the client and will respond back by amending or explaining why they think the requirements are met. Usually there are a few iterations.
	15					Once all requirements are met, a letter is issued about the acceptance and will be published.
Opposition	16					Other people can then have a look and oppose within 3 months. Oppositions go through the hearings office, which is managed by IPONZ
Grant	17					After three months of no opposition the application is granted
Close	18			If no interest shut project down		

Table 26 – Detailed overview of steps described by interviewees and students