

What's inside IV's patent portfolio?

At the end of last year, Intellectual Ventures launched a public database providing details of 33,000 patent assets that it currently owns and manages, allowing an in-depth analysis of its portfolio for the first time

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In December 2013 Intellectual Ventures (IV) took a step towards transparency by publicly listing about 33,000 of its patent assets, representing 82% of its patent monetisation portfolio (<http://patents.intven.com/finder>). Analysing IV's portfolio has now become a tractable problem. This article examines what is in the portfolio, what IV buys and what IV did after the purchases.

After analysing the portfolio, we were able to answer specific questions such as the following:

- When does 50% of the portfolio expire? (2021)
- What is the preferred priority date at the time of IV's purchases? (Between eight and 14 years)
- What percentage of IV's portfolio are continuations? (8%)
- When did IV increase its litigation? (In 2011 and 2013)

We believe that companies can use this knowledge to compare practices in their own patent development and buying programmes. We also believe that the analysis can be used by companies to create fact-based arguments for use in licensing negotiations. Finally, the data suggests that cross-licences, springing licences on transfer to non-practising entities (NPEs)

and micro-pools may reduce the risk of NPE assertions.

We kept our analysis targeted on the facts presented in IV's monetisation portfolio and did not let it stray into discussions about IV's business model. We used public information in the preparation of this paper – IV was not consulted on the data or the analysis.

IV was founded in 2000 with the stated purpose of reducing patent risk for its corporate investors and assisting companies and individual inventors in monetising its inventions. Since its founding, IV has reportedly raised over \$5.5 billion in capital, a large portion of which has come from corporate investors in the high-tech space, such as Microsoft, Intel, Sony, Nokia, Apple, Google, Yahoo, American Express, Adobe, SAP, NVIDIA and eBay. Of note, Google did not invest in IV's second buying fund and it has been reported that Apple and Intel are not investing in IV's third fund.

IV reports that it has spent about \$2.3 billion buying and developing patents through its patent purchasing programme – the other \$2.2 billion raised would have been spent on operations and management fees. The vast majority of IV's revenue does not come from making products or licensing technology to enable the manufacture of products comprising the inventions captured in its patent portfolio. Rather, it comes from licensing its portfolio to other companies – IV is the quintessential NPE.

Which portfolio and what assumptions?

Figure 1 shows the relationship between the 70,000 assets that IV reports it has purchased or developed, IV's current 40,000 asset monetisation portfolio and the public list of 33,000 assets that IV released in December 2013. To begin our analysis, we first needed to understand what

is in IV's patent monetisation portfolio. Put another way, how many of the 40,000 patent assets in IV's current monetisation portfolio should be allocated to its buying activities, as opposed to its investment and development activities?

Turning to Figure 2, IV's monetisation portfolio is spread across three different fund categories. The Invention Investment Funds (IIF 1 and IIF 2) primarily represent IV's purchased patent assets. For the purposes of the analysis, we group IIF1 and IIF2 together as one fund, IIF. We have also categorised patent assets to include applications, pre-grant patent publications and patents. IIF3 is currently being raised and we believe that no IIF3 assets are included in the public portfolio.

The Invention Science Fund (ISF) contains patent assets that IV has developed in-house. Finally, the Invention Development Fund (IDF) contains patent assets created through R&D funded by IV in exchange for the right to license any resulting patent assets. Interestingly, IDF assets tend to be university licensing deals. These three fund groups make up approximately 80%, 10% and 10% of the monetisation portfolio respectively. Although ISF and IDF are interesting in their own right, for the purposes of our analysis we chose to focus on IIF because this is where IV spends the majority of its time, money and effort. It is also the portfolio that we believe poses the highest potential infringement risk to other companies.

To focus on IIF, we wanted to identify the monetisation portfolio assets directly attributable to the IIF portfolio. Referring to Figure 2, we first started with IV's public list of 33,000 assets. We then identified US assets in that list and removed any duplicates. Focusing on US assets enabled us to look at the current ownership and history of ownership of the patents. Next we removed assets assigned to laboratories and universities (IDF) and to IV's science fund (ISF), a separately listed assignee. We

also affirmatively identified assignments to IV's holding companies. We used a mixture of publicly available lists of shell companies from Aaron Greenspan's Plainsite and IP Checkups, as well as our own analysis. This process resulted in the identification of about 17,000 US assets as part of IIF. We were able to determine the relative proportion of IIF to ISF and IDF within the US monetisation portfolio. We then scaled that portfolio back up to the entire monetisation portfolio, compensating for international assets within the portfolio. Because of rounding, not all of the columns in Figure 2 add up perfectly. Unless otherwise noted, all analysis was done using the identification and scaling method described on the IIF assets.

For simplicity during the calculation of expiration dates, we assumed 20 years of life after the earliest priority date and did not factor in term extensions or terminal disclaimers. Additionally, as IV did not list its expired assets, our data provides a snapshot of the IV portfolio of live assets as of December 2013. IV states that 70,000 patent assets have been bought or developed – meaning that 30,000 assets are no longer in the monetisation portfolio. Therefore, any per year analysis reflects survivorship bias – only those patents that are still alive are in IV's public monetisation portfolio. This survivorship bias makes extrapolations about IV's buying activity in the early years more difficult. Finally, IV published its list of assets on December 13 2013 and, as such, this list may not include assets purchased beyond late 2013.

IV's monetisation portfolio today

To begin our analysis, we examined the current composition of assets in IV's monetisation portfolio. We considered questions such as the following:

- When does the portfolio start to expire?
- What does the international portfolio look like?
- Which technologies are represented?

Figure 1. IV's patent portfolio – what is public and what is not

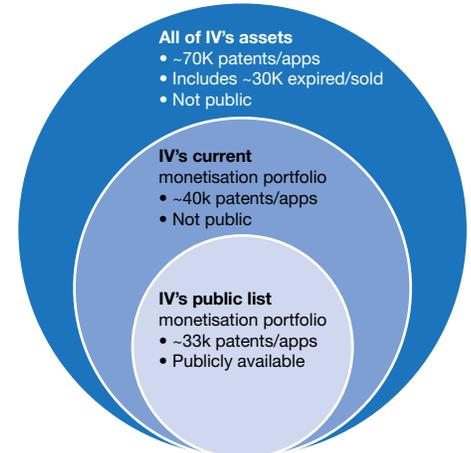
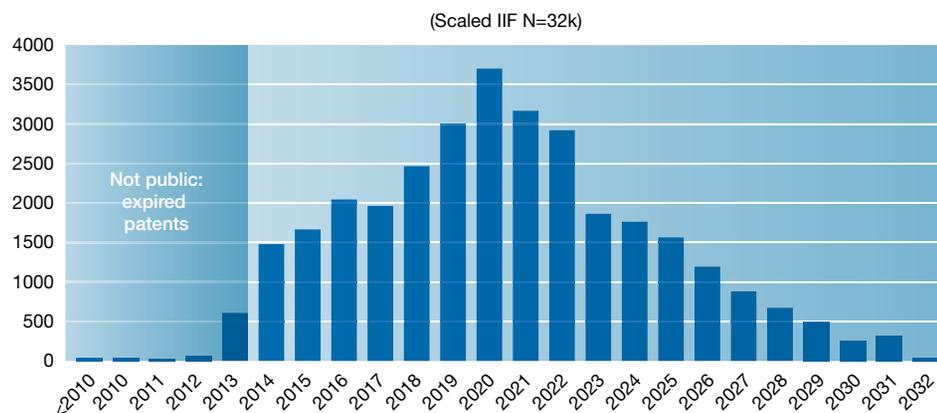


Figure 2. Filtering and scaling of IV's public list

Fund	Entire monetisation portfolio	IV's public list monetisation portfolio	US patents and pre-grant publications	Assignment to IV identified – IDF removed	IIF US bought portfolio – ISF removed
IIF 1 and 2 (buying)	32.0K	25.8K	18.2K	17.4K	17.4K
ISF (in-house developed)	3.7K	3.7K	2.4K	2.4K	0K
IDF (university collaboration)	~4.3K	~3.5K	0.7K	0K	0K
Asset count (approx)	40K	33K	21.3K	19.8K	17.4K

Figure 3. IIF assets by expiration year



What is the portfolio's lifespan?

Like many of our clients, we are interested in understanding when the IIF patent portfolio expires. This lifespan information is helpful in understanding the long-term risks that a company faces when negotiating with IV. By knowing when the IV portfolio expires, a company can modify its negotiating position. For example, knowing the lifespan of the portfolio points to the length of time for which a licence may be required, and informs what a licence today versus a licence three years from now might need to cover and the magnitude of exposure to potential back damages.

Figure 3 shows that more than 50% of the IIF patents will expire by 2021 and more than 80% by 2024. When evaluating your company's exposure to IV's portfolio, we think it important to analyse your specific technology area and assess it against the expiration dates of the relevant portion of the IIF portfolio. See below for more on the portfolio's technology distribution.

Figure 3 is generated from the scaled-up set of calculated expiration dates. Even though term extensions and terminal disclaimers are not accounted for, we believe that this is a good approximation for the purposes of our analysis.

Bear in mind that Figure 3 represents the surviving patents in IV's IIF portfolio: 30,000 assets have already expired or been transferred out of IIF. Looking at the expiration years, we can imagine that the left side of the graph would look substantially different if we had data on all of the assets ever held by IIF.

From a practical standpoint, consider where the distribution of patent value is from IV's perspective versus your

company's perspective over time. For example, seven years from now in 2021, how many of IV's patents would you need to license? Similarly, if calculating a licence fee for a capture licence, how many years of revenue should be considered under the licence and at what royalty levels?

International patents

Turning to the foreign asset profile of IIF, we used the identified US patent assets to locate the entire International Patent Documentation Centre (INPADOC) family. This methodology will overstate the size of IV's foreign IIF portfolio as a result of:

- double counting – INPADOC counts a patent publication and a patent grant as two assets rather than a single asset; and
- INPADOC listed assets having lapsed before IV's acquisition of the patents.

Nonetheless, this approach was used because the IV-published lists could not easily be used to analyse IIF directly as opposed to ISF/IDF due to a lack of international assignment data.

The data indicates that IIF has approximately 10,000 foreign assets (Figure 4). Alternatively, looking at the foreign assets and using the scaling-up approach described in conjunction with Figure 2 results in a number closer to 7,600 foreign assets for IIF. Thus, our methodology provides an upper boundary of the largest potential scope of the foreign IIF portfolio. We believe that a more detailed picture could be constructed through cross-referencing the IV-provided list with the INPADOC data to identify the IIF-specific patents.

Overall, the international component of IIF represents 31% of the portfolio and demonstrates a large investment in US patents with INPADOC families having Japanese patents and publications, followed by Patent Cooperation Treaty publications, and European patents and publications. The next largest international country is Australia, which we find surprising given the relatively small size of that market. One possible rationale is that during IV's buying, Australia had a judicial system more favourable to patent holders and NPEs. Other than China, there were few assets from the BRIC countries (Brazil, Russia, India, and China) in the portfolio.

The technologies

Figures 5 and 6 show the technology sectors and fields that we were able to determine from the US assets and the International Patent Classification (IPC) codes. Specifically, each patent is assigned one or more IPC code by the European Patent Office. IPC codes are

hierarchical codes that can be used to classify patents based on different technologies to which the patents relate. We focused on the use of IPC codes because the World Intellectual Property Office has standardised a taxonomy of the tens of thousands of IPC codes, using 754 unique IPC roots, into five technology sectors which contain 35 technology fields (see Ulrich Schmoh, *Concept of a Technology Classification for Country Comparison: Final Report to the WIPO, 2008*). We analysed the patents on a per sector and per field basis, removing duplicates for a given patent. For example, a patent with three IPC codes might fall into electrical engineering/ audio-visual technology (two IPC codes) and electrical engineering/basic communication processes (one IPC code). For our analysis, despite having three IPC codes, this patent is treated as belonging to two distinct fields and one distinct sector. Another patent may belong to more than one sector. For this reason, the graphs total more than 100%.

Starting at the sector level of the taxonomy, as shown in Figure 5, the vast majority of assets are, unsurprisingly, focused in the electrical engineering sector. This covers significant ground and includes a mix of semiconductor, hardware and computer software innovation. Additionally, several fields of interest also lie within the instruments sector. For this reason it was helpful to consider the top fields across all of the sectors as shown by Figure 6.

Figure 6 shows that high-tech represents more than 80% of IV's portfolio based on the corresponding technology fields, with computer technology representing over 40% of the portfolio. This is unsurprising given the significant technology backgrounds of IV's founders, the first corporate investors being high-tech focused and the generally high number of patents per product in high-tech fields. This technology weighting is also consistent with IV's initial vision of reducing NPE risk for its early corporate investors.

When we examine the high-tech sectors in more detail, we see more buying in software over hardware. From discussions with past IV buyers, IV specifically pursued higher-visibility technology areas where infringement is often more easily detected.

Admittedly, IPC codes have granularity and classification limits for understanding IV's portfolio, but they form a useful starting point for evaluating the impact of its portfolio on the marketplace. For example, a particular set of IPC codes relevant to one's business can be used to determine when the patents associated with those IPC codes

Figure 4. International assets in IIF

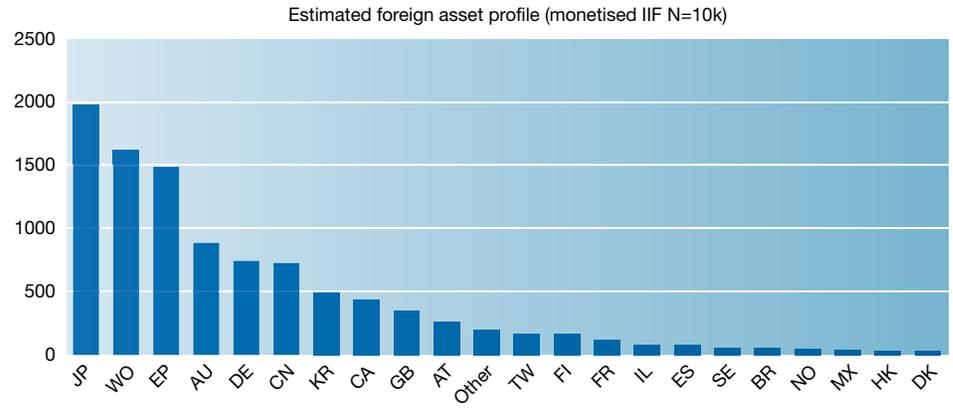


Figure 5. Assets by sector

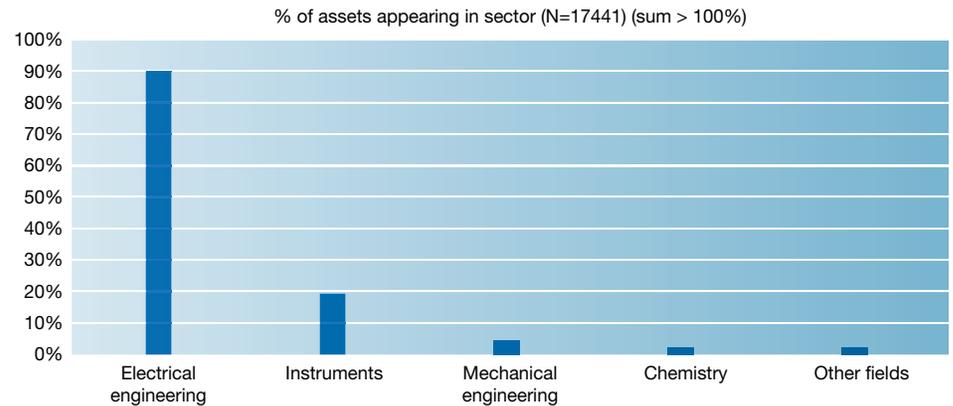


Figure 6. IIF assets by technology field

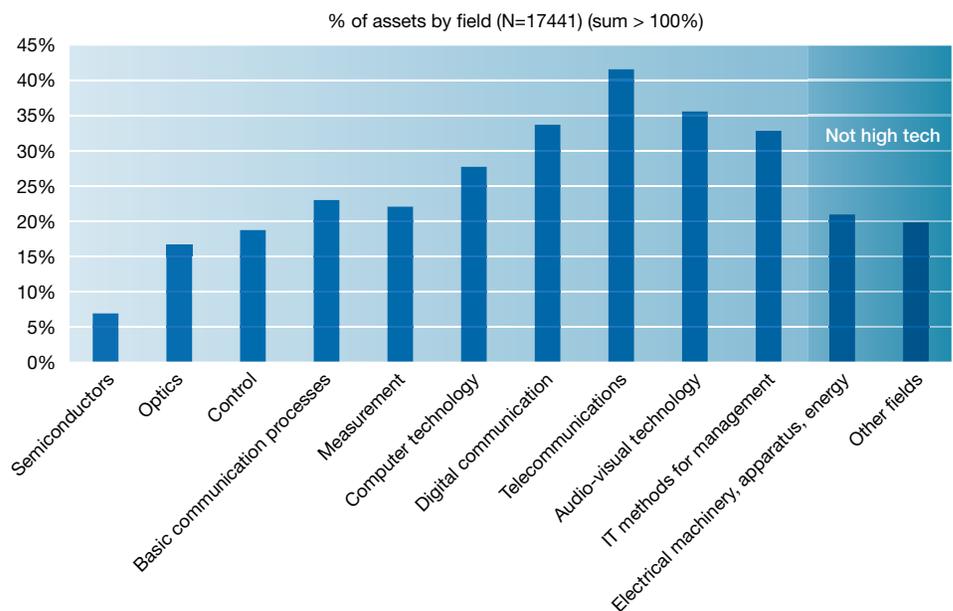
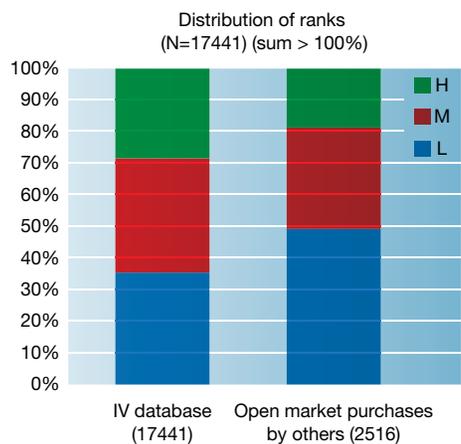


Figure 7. Comparison of IV rankings versus other open market purchases



will expire. Additionally, IPC codes that are clearly outside of a particular technology area of interest can eliminate a large number of patents from deeper consideration.

We also believe that IPC code clustering – common sets of IPC codes assigned to one patent – might be beneficial as a further analytical step. For example, looking at the overlap of IPC code clusters relevant to one’s business compared to those common within the IV portfolio can allow a more refined view of the overlap to be identified.

How do IV’s patents rank?

At the risk of igniting a patent quality debate, we attempted to generate some gauge of how IV’s portfolio might rank against other portfolios so that one might start to make overall quality/value estimates. We use our own automated ranking system, which focuses on the patent’s structure, claims, remaining life and citations (for more details see <http://richardsonoliver.com>). This allows us to determine which portion of any given portfolio we should look to first for potentially valuable patents. The ranking is not an absolute determination of the value or quality of the portfolio, but it is helpful in pointing to where to look first. Importantly, the ranking is done on a per US patent basis, so excludes publications and international patents.

So how did IV do? Unsurprisingly, IV had a higher percentage of patents in the top rank than we see in typical portfolios – 28% of IV’s portfolio is in the highest rank. We compared IV’s purchases against our proprietary database of over 1,000 open market brokered patent deals. Figure 7 shows IV’s top-ranking assets (28%) compared to the top-ranking assets we have seen purchased (2,516) in

brokered open market transactions over the last four years (18%). We find this significant because the top-ranked results are generally more interesting patents. Survivorship bias may explain some of IV’s distribution. Specifically, over time, IV would have an incentive to eliminate lower-ranked assets. However, even in 2012 and 2013 (averaging 28% in the highest rank), IV appears to have bought more top-ranked patents than the average for open market buyers (18%).

One would expect that an organisation focused on buying and developing patents would have more higher-ranking patents. We would also expect informed open market buyers to make similar decisions. However, it is clear that open market buying is either less selective than IV or being carried out using additional factors not built into our ranking system.

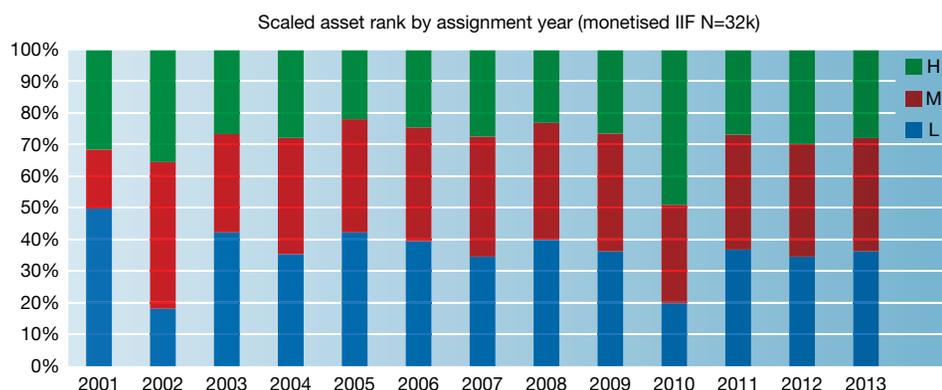
Figure 8 shows IV’s rankings by purchase year. Given survivorship bias in IV’s public list of assets, we would expect to see patents bought early on to have a higher ranking. We see this in a few cases (eg, 2002), but there does not appear to be a trend. It appears that between 2004 and 2009, IV bought patents using other factors, such as quantity versus price. In 2010 there was a marked improvement in the higher-ranking patents, with nearly 50% of those patents falling into the top rank. Assuming that these deals would have been structured in late 2009, it appears that IV took advantage of the economic downturn and bought more interesting assets in 2010. Between 2011 and 2013 the numbers returned to historical percentages.

IV’s buying

Figure 9 shows IV’s acquisitions by year. We determined an acquisition year for each IIF US patent asset and then scaled up to the broader IIF portfolio.

When we overlay the resulting portfolio with the economic turmoil of 2008, we see IV purchases stepping up substantially during relatively bad economic times. Between 2008 and 2010, IV probably found a lot of great deals. That said, it did pull back from its 2008 high. In 2009 one of the authors interviewed Don Merino, who was just completing his term as head of acquisitions for IV. Merino asked what the author thought would happen if IV pulled back from buying. It is certain that IV fuelled the growth of the brokered patent market and IV’s reduced spending had a significant impact on those brokers. However as the authors’ other papers on the brokered patent market in IAM (eg, “Good things in small packages: the brokered patent market in 2013”, IAM 63, January/

Figure 8. Ranking by purchase year



February 2014) have shown, the market remains robust and healthy independent of IV's buying activities.

More recently, we see a substantial decrease in IV purchasing. Figure 9 shows an aggressive pre-2013 buying pattern. However, Figure 10 shows 2012 and 2013 in detail with a remarkable fall-off in buying. Excluding February 2013, IV bought only 564 patents in 2013. It seems reasonable from this data to assume that 2013 represented the end of purchasing for IIF2 and that IIF3 had not yet been funded – although it is also possible that some purchases in late 2013 have not yet been listed by IV.

Remaining asset life

In Figures 11 and 12 we look at the remaining asset life at the time of the assignment to IV. This is one of the key characteristics that our buyers consider when deciding whether to buy assets. Note that survivorship bias shifts Figure 11 to the right – suggesting that the purchases had a longer life than they did in actuality (the green line shows what the expected curve shape would be without the survivorship bias). We see a distinct preference for assets with between eight and 14 years of life remaining. By buying assets of this kind, we see that IV practises what we have found to be true and has also been reported in academic papers – that is, the value of a patent begins to show at around 12 years of remaining life (eight years from the priority date). Eight years after filing, the technology has had a chance for significant market adoption, has proven itself as being compelling against alternatives and is mature enough to stand a good chance of withstanding a prior art challenge.

Figure 12 shows the distribution of asset life remaining for patents purchased in 2013. With an average of 10 years remaining, but a distinct preference for between six and 12 years remaining, IV continues to practise buying patents that have had a chance to prove their value. Figure 12 also shows that IV is willing to buy patents with a relatively short remaining life. Closer analysis might uncover deal-level linkages (eg, the shorter remaining life patents came along as part of a deal that got longer remaining life patents).

To calculate the scaled remaining asset life, we used the calculated expiration date of each asset in the US IIF asset computed by adding 20 years to the earliest priority date. We took the difference between that date and the assignment date to IV. These assets were then distributed by years of life remaining and the distribution was scaled up to the size of the IIF portfolio. To estimate the shape of the green line, we

Figure 9. Acquisitions by year

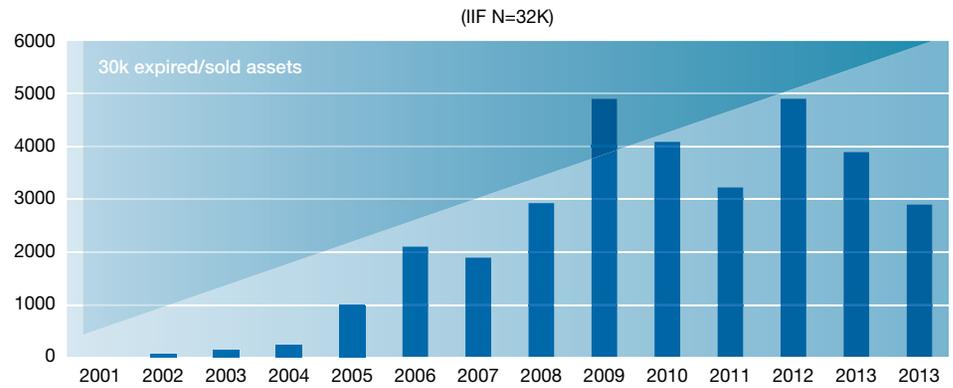


Figure 10. Acquisitions by month (2012-2013)

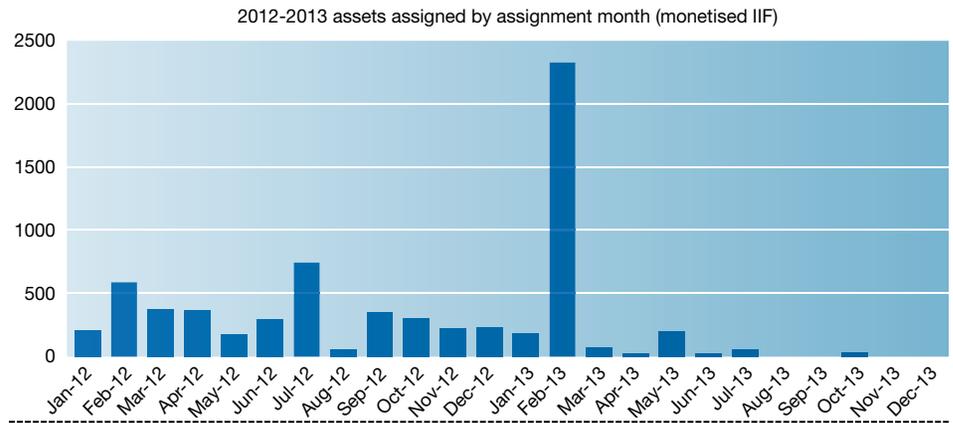
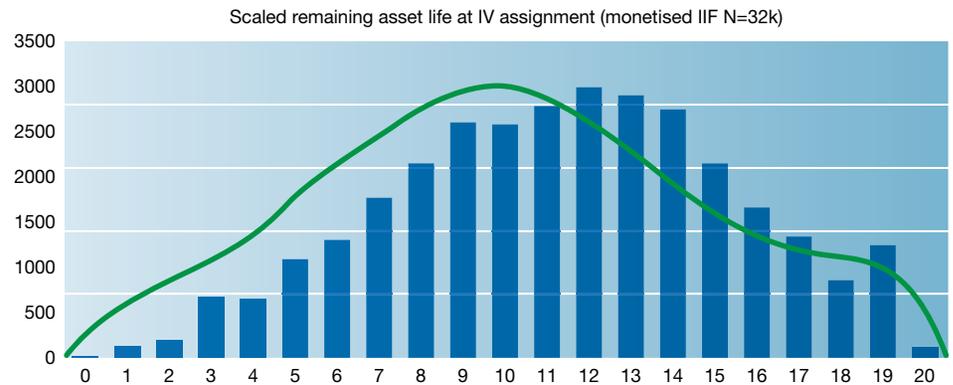


Figure 11. Remaining asset life at assignment to IV (green line shows estimated shape of 70,000 assets)



chose the general shape of the histogram in Figure 11, but chose a centre at around 10 years based on the 2012 and 2013 data. Note that because of rounding, some assets will show as having zero years of remaining life.

Figure 12. 2013 asset purchases, remaining life at time of purchase

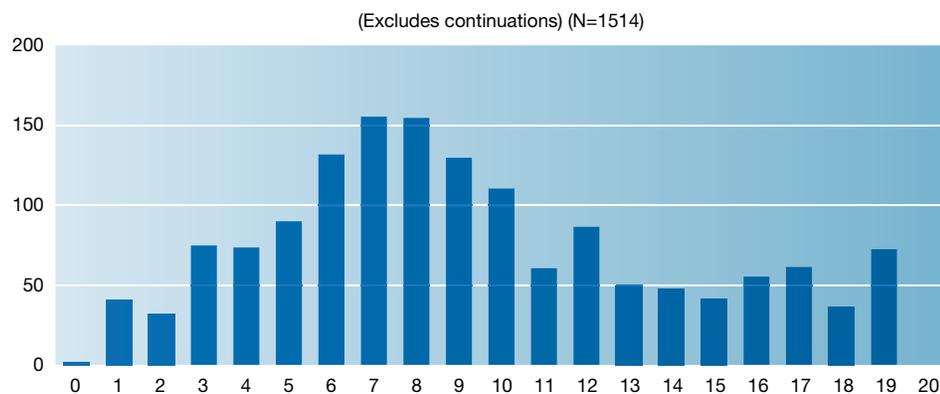
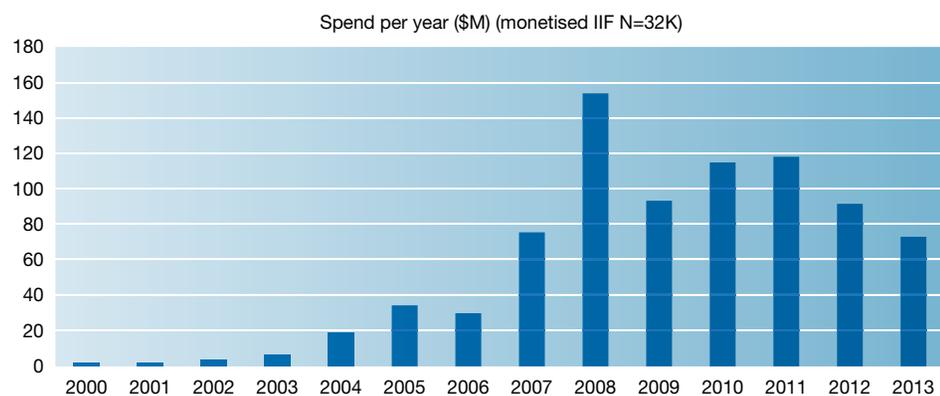


Figure 13. Spending on assets in IIF



IV spending by year

Based on the current portfolio, and information presented by IV in 2011 about IV's per asset spending, we estimated how much money IV had spent per year on the current IIF monetisation portfolio. This analysis excludes the 30,000 assets no longer in the IIF monetisation portfolio.

We calculated IV's spend using the per asset purchase price listed in an IV presentation by Merino for a Licensing Executives Society meeting from 2011. Only the per asset purchase price data from 2003 through 2010 was listed and we therefore used the average of these annual prices for the periods 2000-2002 and 2011-2013. We first used the acquisitions per year analysis above combined with the per year pricing on both a per asset basis and a per US patent basis to calculate the spend on the 32,000 IIF assets in monetisation.

Adding all the years together, we found about \$810 million of spend for 32,000

assets. If we further scaled up IIF to include a proportional number of expired and sold assets, we would expect \$1.6 billion for 62,000 total IIF assets. However, if we were instead to use the US patent data together with per US patent price, we would estimate an IIF spend of \$2.6 billion for 62,000 IIF assets.

Our bottoms-up estimate – between \$1.6 billion and \$2.6 billion – brackets \$2.1 billion in reported spend for IIF. The \$2.1 billion is derived from IV's recent presentation at the 2014 USC Gould IP Institute. Specifically, IV presented spending of \$2.3 billion on 70,000 assets with \$110 million for ISF identified. We estimated IDF spending as comparable to ISF, based on a similarly sized portfolio, thus: \$2.3 billion – \$0.2 billion = \$2.1B.

One interesting aspect of IV's purchasing is that it appears that the 2011 purchases were more cost effective, in that IV spent substantially less money for a larger number of assets. This conflicts with the authors' intuitions that the 2008 downturn would have provided the best opportunities to obtain assets at a lower price.

Who were the sellers?

Since we see a lot of coverage in the press about NPE activity and we hear many companies complaining about IV's practices, we decided that it would be interesting to look at who is selling patents to IV. Figure 14 shows the distribution of assets per assignor. IV clearly buys many small lots of patents – approximately 1,350 assignors have sold IV fewer than 10 assets. However, these small lots represent only 25% of IV's total assets. Approximately 100 companies represent 60% of the asset sales to IV – with a surprising list of the top 20 sellers of patents to IV:

1. Kodak
2. Digimarc
3. NXP
4. Raytheon
5. Mangachip
6. Telcordia
7. Transmeta
8. Spyder Navigations
9. Amex
10. Polaroid
11. Cypress Semi
12. Daimler
13. France Telecom
14. Primax Electronics
15. Conexant
16. BAE
17. Sanyo
18. Nokia
19. Bellsouth
20. Entorian

Looking at this list, we see a number of companies in financial crisis or bankruptcy. As a long-term strategy, it seems to us that early cross-licences can prevent many of the problems that companies later face with NPEs which have acquired assets. Along with industry practices of cross-licensing, new models for reducing the risk of NPEs are evolving. For example, Google is promoting a ‘licence on transfer’, where licensees receive a springing licence when the patents transfer to an NPE. Other options include Unified Patents Inc’s ‘sale to an NPE’ option, which helps to keep patents out of NPE hands. Other defensive aggregators such as AST, OIN and RPX also provide helpful strategies.

To calculate the frequency distribution of the number of assets per assignor, we looked at every assignment, found a list of unique assignors and then counted the assets assigned by each of these unique assignors.

What did IV do after the purchase?

We next turn to the analysis of how IV managed the patents after they were purchased. We look at IV’s patent development work, as well as its litigation.

Continuations

Even when we look at issues around survivorship bias, we see that IV files a large number of continuations. Specifically, of the 17,000 asset in the IIF US-bought portfolio, 1,400 – or 8% – are continuations. Nearly 50% of those continuations are filed within one year of the asset being bought.

Figure 15 shows when IV is most likely to file continuations. Almost all of the continuations are filed within four years of purchase. Additionally, we looked at when those continuations were filed relative to the priority date, and a clear preference exists from between four and 10 years (see Figure 16). We believe that this further illustrates IV’s preference for developing patents of high value between eight and 12 years from the priority date.

Continuations can be difficult to track. An asset was determined to be a continuation if the USPTO application date was later than the date of first assignment record to a company we determined to be IV. This definition also includes divisional and continuation-in-part applications.

IV’s reissue practice – 5% to 8% of all US reissue applications

IV has demonstrated a pronounced interest in reissued patents. Figure 16 shows that IV has 386 reissued patents in its published list. We have not scaled the reissued patents based

Figure 14. Frequency distribution of assets per assignor

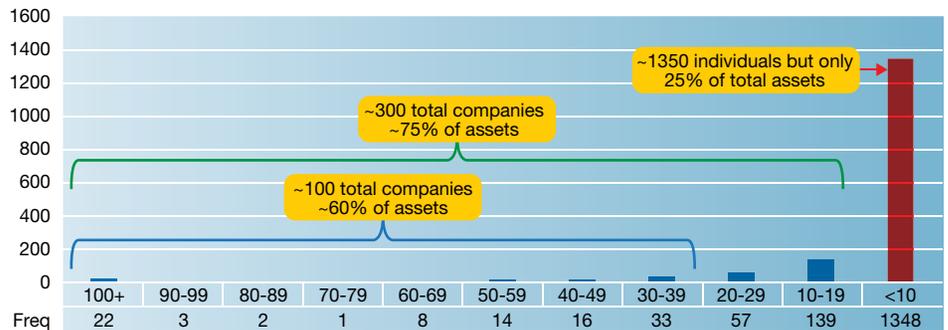


Figure 15. Time from purchase to continuation filing

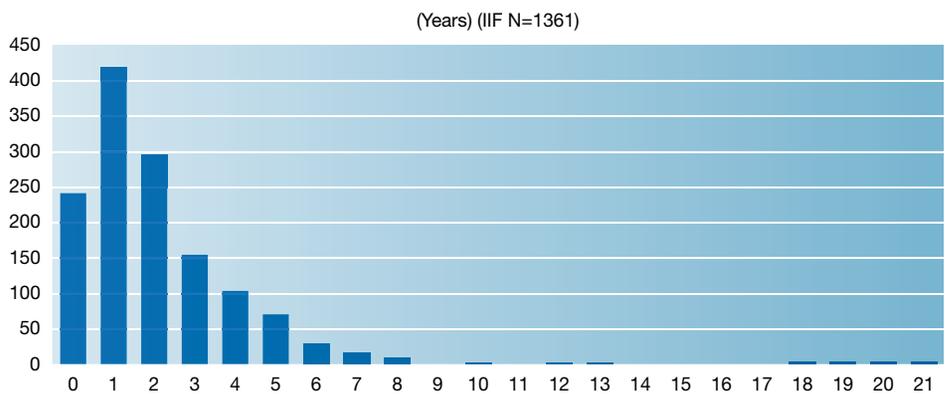
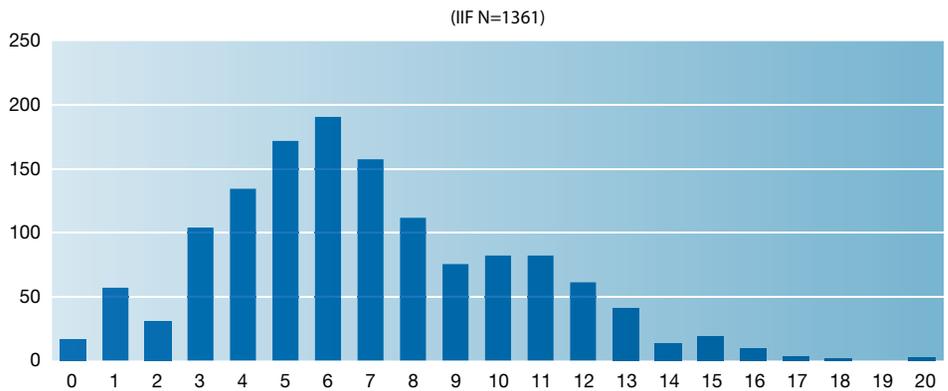


Figure 16. Years from priority date at IV continuation filing



on the size of the entire IIF portfolio. IV filed 65% of these reissues. By any measure, 386 reissued patents is a large number – a typical portfolio may have only a few.

Figure 17 shows reissues by IV by filing

Figure 16. Who filed the reissue?

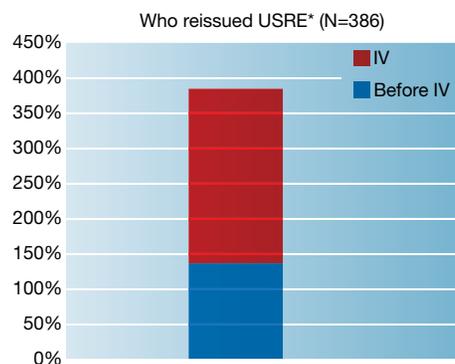
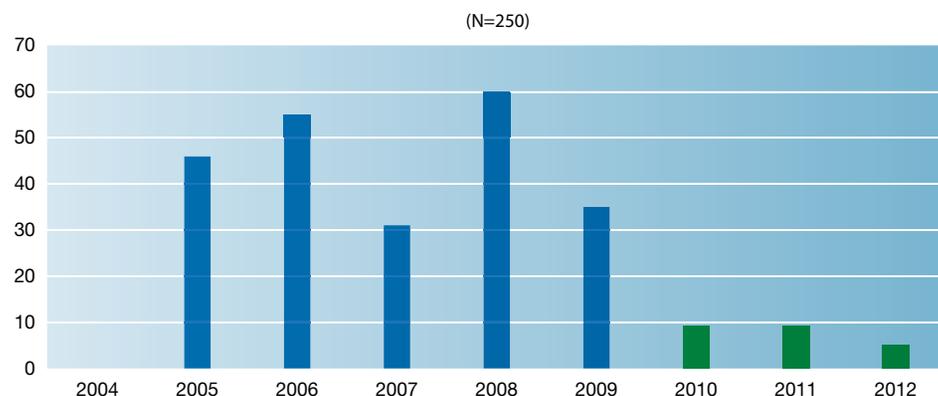


Figure 17. IV reissues by filing year



year. From 2005 to 2009 it appears that IV included filing reissues after acquisitions heavily in its buying strategy. This is supported by our analysis showing that IV filed 87% of its reissues within the first two years of assignment – the implication being that IV planned to file the reissue when IV bought the patents.

It is unclear whether IV reduced filing reissues beginning in 2010 or whether the long pendency of reissues is affecting the data from 2010 to 2012.

Figure 18 shows IV's percentage of all reissue grants in the United States. Between 2009 and 2012 IV represented anywhere between 5% and 8% of all reissues in the United States. By any metric, this is an extraordinary percentage of reissues.

We determined a reissued patent to be purchased by IV if the application date for the reissue was before the date of first assignment record to a company we determined to be IV. If the assignment to IV was before the application date, we concluded that IV filed the reissuance. We used the year of the application date for the reissue as the year in which it was reissued by IV. This allows insight into IV's post-purchase strategy without the data being skewed by possible delays at the USPTO.

IV's litigation

Although IV's monetisation portfolio does not tell us who the company has been contacting to take licences, we can see with whom it has been litigating. IV states that it does not enter into litigation lightly and only after terms cannot be reached with the other party (see www.intellectualventures.com/insights/tag/litigation/). We looked at all the US patents in IIF to determine that IV had either filed, or the patent been

bought in litigation in, 56 separate patent suits as of March 2014. Eleven of those cases are in the name of one of IV's holding companies.

Figure 19 shows the number of US patent litigations filed per year for the IIF portfolio. With almost no litigation before 2010, one wonders whether IV decided that litigation was the only way forward in many negotiations. Notably, IV initiated 33 distinct lawsuits in 2013 – by far the largest number to date.

We then looked at how often IV purchased patents that had been litigated and how quickly after the purchase IV initiated litigation (Figure 20). We also changed perspective from focusing on the number of cases to the number and identity of the specific patents in cases. Figure 20 shows that IV bought many patents that were in litigation or had been recently litigated – 242 US patents had been asserted before assignment to IV. The majority of these patents had been litigated in the five years prior to the assignment to IV. One open question is whether these purchases by IV reduced litigation risk from these patents for their corporate investors.

Of the 352 patents in litigation after the assignment to IV, there is a clear preference for litigating immediately after the assignment – 40% were litigated within one year of assignment. There could be a number of reasons for litigating so quickly after assignment:

- IV may have had an option on the patents;
- There are a significant number of litigated patents between three and nine years from assignment; and
- The early litigation may be a statistical anomaly.

In order to determine the litigation

Figure 18. IV reissues by filing year

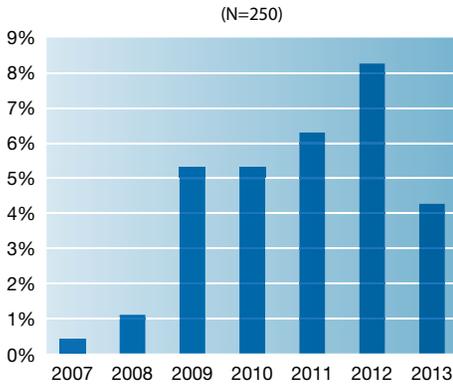
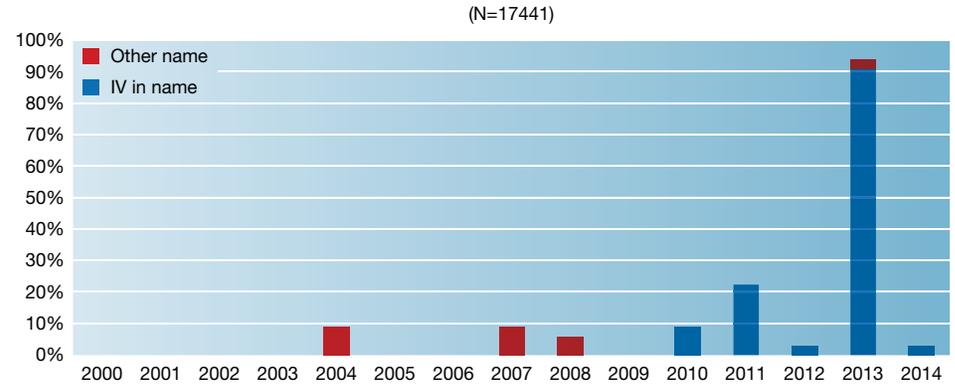


Figure 19. Number of litigations filed by year



history for IV, we started with the US patents in IIF and searched for cases in the Lex Machina database for litigation involving these patents. The litigation filing dates were then compared to our calculated date of assignment to IV. IV filed cases were then split into those in which IV was a named party in the case and those in which a holding company was named. For any holding company, we also did a manual review of the cases to ensure that the case actually involved IV. Through the manual review, we saw three instances of patent assets that were assigned to IV, then sold to another company, asserted by that company and then sold back to IV.

Practices and preferences

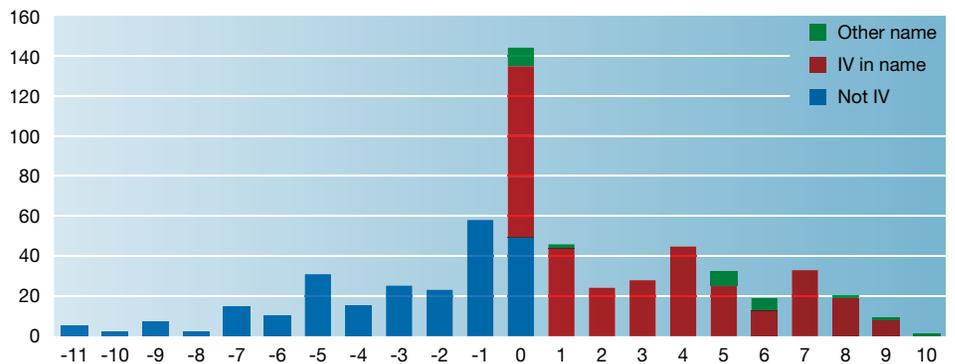
IV's release of its, to date, private patent portfolio provides important insight into how it has deployed \$5.5 billion to buy and develop patents.

The concentration of sellers in IV's portfolio struck us as significant because some of that risk could have been avoided by long-term planning. A few dozen companies represented a large portion of IV's portfolio – many of those were struggling or bankrupt. Combining cross-licensing and springing licences could have reduced the long-term NPE risk.

IV's post-acquisition patent development practices also suggest that companies should consider increased use of continuation and reissue practices as tools to obtain patents with claims having interesting scope.

The public list also gives companies an opportunity to better assess their exposure and risk from IV's portfolio. The standardised taxonomy can be analysed against the company's revenue sources and the IV portfolio expiration dates to assess the company's exposure over time and by

Figure 20. Litigated patents - assignment date to litigation filing date (years)



IV patent portfolio: executive summary	
Published assets	33,000
Total size of IV portfolio	40,000
Total size of monetised Invention Investment Fund (IIF)	32,000
Total size of monetised Invention Science Fund	3,700
Total size of monetised Invention Development Fund	4,300
Public monetised US IIF assets	18,200
Year at which 50% of IIF patents expire	2021
Percentage of assets in high-tech	>80%
Average remaining life of asset at IV purchase	10 years
Average asset purchases per year 2008-2013	3,972
Average spend per year on purchases 2008-2013	\$107 million
Highest spend in 2008	\$154 million
Percentage of assets purchased from IV's top 100 sellers (at least 30 assets)	60%
Percentage of assets for which IV filed continuations	8%
Reissued patent assets in published IV portfolio	386
IV's percentage of total reissues granted by the US Patent and Trademark Office 2008-2013	5%
Number of patents litigated by IV	352
Percentage of litigations filed within one year of assignment to IV	40%

product segments. That in turn can inform a company's negotiations with IV.

The data reveals some of IV's important practices and preferences. From preferred buying criteria to post-purchase patent development to substantially increased litigation, the data allows us to ask and answer many questions, and we have had a chance to present only a portion of our analysis in this article. Areas for future discussion include what is inside the ISF and IDF portfolios, deeper international analysis and deeper analysis of technology fields. *iam*

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Action plan



The publication of IV's patent assets allows companies to take a number of steps in terms of avoiding disputes with the firm and leveraging the services it offers, including the following:

- Reducing future NPE risks – enter into cross-licences or licences that spring when a transfer to an NPE occurs. Look both within your space and in adjacent and complementary market spaces. Consider using springing licences that focus on NPE risk (eg, licence on transfer) as well. Defensive aggregators such as AST, OIN, RPX and Unified Patents can also help to reduce risk.
- Patent buying – refine the buying programme criteria to favour patents between eight and 12 years from the priority date and also favour the availability of open continuations. Post-acquisition, implement a patent development plan for acquired assets.
- Patent portfolio development – consider increasing continuation practice (and reissues) to a more substantial portion of your portfolio (eg, more than 5%).
- Analyse IV exposure – determine what your initial exposure to IV looks like and find out when that portion of the portfolio expires.