

White Paper

Archimedes Offspring: An Improvement on a Previously-Proven Successful Business Model

Introduction: “Mass Aggregators” of Intellectual Property

The Traditional Model

Several years ago, a Stanford law review article co-authored by Robin Feldman, a law professor at University of California’s Hastings Law School, and Tom Ewing, a member of Silicon Valley’s elite legal community, emphatically stated that the patent world was quietly undergoing a change of “seismic proportions”¹, a veritable tsunami.

According to the authors, in a few short years, a handful of entities had amassed vast collections of intellectual property, including patents, trademarks, copyrights and trade secrets; a collection which according to the authors, was on an unprecedented scale.

Their research showed that in a little more than five years, the most massive of these entities, Intellectual Ventures (IV), had accumulated 30,000-60,000 patents worldwide, which, at the time, made it the 5th largest patent portfolio of any domestic US company and the 15th largest of any company in the world.

The authors then examined the size of the collection, which was important in understanding the nature of the shift. More importantly, they also examined the method of organization and the types of activities that were causing the paradigm shift in the world of patents and innovation.

That article, which discusses both the brilliant insights and the glaring defects inherent in the Intellectual Ventures business model, along with several other articles about, and references to, Intellectual Ventures and its business model that have appeared over the years since publication of the Ewing Feldman article (many of which are listed at the end of this whitepaper), provide compelling evidence why the Archimedes’ Offspring business model, which both embraces the successful elements of the IV strategy while avoiding the pitfalls, will be wildly successful.

Attributes of a Mass Aggregator

As Ewing and Feldman point out, unlike operating companies, mass aggregators do not engage in the manufacturing of products nor do they conduct much research. Rather, they pursue other goals of interest to their founders and investors. These mass aggregators, historically denominated “non-practicing entities” (or “NPEs”) have been around the patent world for eons.

However, in the past, they fell into one of two broad categories. The first category included universities and research laboratories, those types of institutions which tend to have engineers and scientists

¹ Ewing & Feldman, “The Giants Among Us”, *Stanford Technology Law Review*, 2012 *Stan. Tech. L. Rev.* 1

engaged in basic research, with their monetization limited to the licensing of the inventions to third party licensees, rather than manufacturing products on their own.

The second category included individuals or small groups who purchased patents to assert them against existing, successful products. As the article explained, those in this second category often were able to extract a disproportionate return, far beyond the value that the patented invention added to the commercialization of the product, if it added anything at all.

However, the impetus for the Ewing Feldman article wasn't these traditional mass aggregators, but a relatively new kind of aggregator, the new kid on the block: Intellectual Ventures. In the eyes of the authors, this new type of mass aggregator was "an entirely different beast".

Intellectual Ventures- The Emergence of a Newer Model: Invention Capital

So how was this new aggregator changing the game? To begin with, funding sources for these newer aggregators, including Intellectual Ventures, consisted of some of the most successful and respectable organizations in the world, including companies such as Apple, eBay, Google, Intel, Microsoft, Nokia, and Sony. Additionally, the authors indicated that academic institutions, among them the University of Pennsylvania and the University of Notre Dame, along with international entities such as the World Bank, were also among the group of investors in these new entities. Even countries, such as China, France, South Korea, and Taiwan, had become players in this space.

The portfolios of these new mass aggregators consisted of inventions that cover vast areas of innovation, spanning everything from "computers to telecommunications to biomedicine to nanotechnology." Here's how the authors, in their own words, describe the scene:

*"The types of returns promised to investors and the types of benefits offered to participants are also quite different from garden-variety non-practicing entities, as are some of the tactics used in organizing the entities and in asserting the patents. Finally, the scale itself is simply mind-boggling. Mass aggregators operate on a scale and at a level of sophistication and complexity that would have been unimaginable a decade ago. **They have taken the prototype strategies pioneered by a prior generation of non-practicing entities and changed them into some of the cleverest strategies yet seen in the intellectual property rights field.**"*

The Basic Philosophy Behind the Intellectual Ventures Business Model

According to Intellectual Ventures, ***invention per se is its product***, and both Nathan Myhrvold and Peter Detkin, two of the four founders, have referred to the company's business model as "Invention Capitalism." They define Invention Capitalism as applying concepts from venture capital and private equity to develop and commercially exploit new inventions.

Although Intellectual Ventures is designed to make money from trading in patent rights, the founders describe their activities as ones that will incentivize research and development in all technical subjects. Myhrvold, for example, has been quoted as saying that:

“Most people don’t view [research]as a for-profit venture [O]ur goal is to make research something you can invest in.... it’s a valuable investment if you know what you’re doing ... if we supply capital and expertise in the right way, then we can make a hell of an investment”.

Although Intellectual Ventures has never divulged the precise nature and extent of its portfolio, the company has reported that it holds some 35,000 “invention assets.” The company does not define the term, but the commentary about their business operates on the assumption that this phrase refers not only to utility patents, but also to patent applications, non-filed invention disclosures, design patents, trademarks, and any trade secrets owned or licensed by the company.

Intellectual Ventures - Funding Sources

To finance its acquisitions and operations, Intellectual Ventures raised \$5 billion. The company’s initial funding came from operating companies such as Microsoft, Intel, Sony, Nokia, Apple, Google, and eBay. Subsequent funding sources included financial investors, comprised heavily of institutional endowments and wealthy individuals, among them William and Flora Hewlett Foundation, the University of Pennsylvania, the University of Notre Dame, Grinnell College, and Charles River Ventures.

Separately, the Bill and Melinda Gates Foundation had asked Intellectual Ventures to perform some contract research related to antimalarial devices; this appears to have been the only physical product made by the company, apart from some prototype work on a nuclear reactor co-invented by Myhrvold. Intellectual Ventures’ investments are distributed among more than five funds, and the investors have not necessarily invested in each fund or in each fund equally (**Note:** This is a structure which Archimedes’ Offspring has adopted as well, in the form of its Invention Investment Families. See the comparison chart near the end of this white paper).

The company claims that it has been structured to operate in a manner resembling that of venture capital and private equity funds. Thus, the company strives to receive approximately a 2% management fee plus 20% on the carried interest; although, actual terms may vary significantly from fund to fund and acquisition to acquisition. (**Note:** As explained below, this fee structure is decidedly different from, and far more expensive for investors, than is the AOS fee structure from investments in its sponsored Invention Investment Families funds).

Intellectual Ventures - Return on Investment

With mass aggregators, what do their investors get in return? While it is difficult to generalize, in the case of Intellectual Ventures, the investors vary tremendously, as do the types of deals they make. Some investors are interested both in financial returns and in access to Intellectual Ventures’ vast pool of patents. For investors that are technology companies, Intellectual Ventures provides a defensive function in the form of access to patent licenses. In fact, some of IV’s technology company investors are interested in specific technology areas where they’re able to direct Intellectual Ventures to acquire patent rights in order to obtain license rights.

However, another category of investors have little interest in access to patents. In fact, the company

has confirmed that their investor pool includes some purely financial investors, who typically have no need for patent licenses. In fact, the company believes that some of these financial investors have chosen Intellectual Ventures and the general category of intellectual property as an investment option because it's believed to be uncorrelated to other investment classes (i.e., an asset that is acquired precisely in order to help create greater diversity in the investment portfolio).

For investors who get access to the patent pool, that access provides something far more sophisticated and complex than the patent licenses that would be necessary to produce a product. Consider the story of Verizon, which paid \$350 million for patent licenses and an equity stake in one of the Intellectual Ventures Funds in 2008. TiVo sued Verizon for infringement. Verizon purchased a patent from one of Intellectual Ventures' shell companies, which was then put to work as a counterclaim in the TiVo suit, in a program that Intellectual Ventures calls "IP for Defense."

(**Note:** Such transactions would be even more interesting if the arrangements allowed the purchaser to sell the patent back to the aggregator at the conclusion of the litigation. This would resemble a leasing program, or perhaps a form of a patent library, in which those who invest in mass aggregators could obtain just the right patent needed at just the right moment, returning the patent when the need has passed. The former owner after the repurchase might even be able to make a profit on the transaction, given that a litigation-tested patent is presumably more valuable than an untested patent. This is a strategy that AOS intends to pursue at the appropriate time in the future.)

Archimedes' Offspring: Refining the IV Model

How AOS Offers Something Better

- AOS doesn't play in Venture Capital or Angel Spaces

One of the few, but nevertheless significant, drawbacks to the Intellectual Ventures model is the type of individuals and organizations it targets to be its investors and the nature of the model that it has pitched to them.

First, in every investment opportunity, the nature of the investor targeted affects the amount of revenue that the organization will need to generate, on a continuous basis, in order to satisfy that investor. In the case of Intellectual Ventures, they targeted the types of investors who normally play in the venture capital and angel spaces. Because of the kind of model they've adopted and promoted, i.e., the venture capital model, the expectation of the investors permitted to invest is a venture capital-type of return, i.e., for successful ventures, eight to ten times their money back in 7 to 10 years (**Note:** In this regard, Archimedes' Offspring's model is very different. More about that in the chart at the end of this white paper which highlights the differences between the IV model and the AOS model).

To reiterate, because of how the founders characterized themselves and their company, i.e., by comparison to venture capital and private equity firms, Intellectual Ventures trapped itself in a model that promises a level of profitability that venture capital firms typically must provide to their investors, one that substantially exceeds returns from those of other types of investments.

■ AOS's Model is Public and Liquid, Not Private and Illiquid Like IV's

A big difference between the IV model and the AOS model is the nature of the entities that hold the intellectual property (IP).

Neither Intellectual Ventures itself, nor any of its network of companies, is public. In addition, Intellectual Ventures has not revealed publicly which part of its corporate network is the "VC firm/fund" part (and thus needs to remain private) and which part is the "VC investment" part (which could, at least in concept, be made public).

In the absence of a precise explanation of its business by IV, commentators have assumed that the VC fund part comprises shell companies like the Invention Investment Fund I LP, and the VC investment part comprises patent-owning shell companies like Ferrara Ethereal LLC. Also unclear is whether any restrictions have been placed on the ability of the limited partners (the investors) in the VC fund portion to sell their shares to third parties.

Moreover, in the absence of being listed on a public exchange, and even if there are no contractual restrictions on the resale of these shares, there are regulatory constraints imposed by the securities laws at both the Federal and state level that further restrict the transferability of the shares, confining any transfers to accredited investors or requiring substantial waiting periods before such transfers can occur. These additional restrictions further compound the liquidity problem.

Fortunately, in the case of the AOS model, that's not a problem. Rather, it's management's intent to turn each of the AOS-sponsored Invention Investment Funds into public companies at the earliest possible point in time. This is a foundational principle of the AOS business and it's embedded in its business plan. And, it's management's intent to pursue this strategy with a vengeance.

All things being equal, while the lack of restrictions on equity transfers is certainly a good thing, and the absence of liquidity problems will, undoubtedly, make a prospective deal more palatable, the question remains: does the difference really matter all that much? In order to answer that question, a comparison is in order. And, when comparing the differences in results and outcomes between a private ownership model like IV and a public ownership model like AOS, it's useful to find a comparable. Fortunately, there is one: Acacia Research Corporation.

Like the future envisioned by AOS management for the AOS-sponsored IIF funds, Acacia Research, a competitor to Intellectual Ventures, is a public company. Like Intellectual Ventures, Acacia is in the business of licensing patent rights to third parties. As such, Acacia can be used to provide a side-by-side comparison of the type of results one can expect from ownership in a public company versus those results from ownership in a private company ownership, and, in the process, hopefully help answer the question, which form is preferable?

Unlike IV's investors, Acacia's investors derive a large share of their gains directly from the appreciation in the market price of the publicly-traded Acacia securities, rather than indirectly from the profits derived by the entity (i.e., IV or one of its shell companies) holding the leased or subsequently sold IP. Consequently, investments in Acacia are inherently more liquid than a typical VC investment like those made by IV's investors.

In addition, for additional contrast, let's take a look at Acacia's performance during the period 2002 to 2011, the period for which we have more reliable comparative data.

During the 2002-2007 time period, when many of Intellectual Ventures' funds were likely being raised, Acacia's shares grew by more than 30% per year on average, without any consideration of dividends paid by Acacia (which would also, of course, ordinarily be counted as part of its value growth). Additionally, over the 2002-2011 time period, Acacia's shares grew by even more. All things being equal, rational investors will always choose more liquid and less risky investments, like those in Acacia's stock, than the illiquid and riskier investments offered by companies like Intellectual Ventures.

In conclusion, insofar as the structure of its business model is concerned, AOS, like Acacia, enjoys a considerable competitive advantage over companies like Intellectual Ventures, whose closed and private "value ecosystems" produce significant disadvantages when it comes to the issue of liquidity and the free transferability of equity ownership in the enterprise.

■ Our Fees are Low and Subject to "Earn-In" Preconditions, unlike IV's

As indicated above, Intellectual Ventures has said that of the money it makes from the investors' capital, it intends to keep 20% of the profit for itself as carried interest. It has also declared that it will charge a 1-2% management fee calculated as a percentage of capital raised.

In this area as well, the AOS model is far superior to the IV model. See more about that in the chart which follows below.

Intellectual Ventures IP Litigation Strategy

One area where the Intellectual Ventures model, as it has evolved over time, has excelled in producing superior results is in the pursuit of patent litigation against individuals and companies that have infringed IV's IP rights.

At one point during its evolution, Intellectual Ventures used third parties to carry out much of its IP litigation activities. The way this was accomplished was that the company would sell a patent to a more aggressive licensing company, retaining a license for Intellectual Ventures' investors. The new owner would then be free to sue or license anyone not protected contractually by IV's relationship with a licensee or with one or more of its investors. This allowed IV to profit indirectly from the litigation without appearing as a party in the litigation or engaging in the expenditures or the risks of litigation.

Prodding reluctant infringers

Another strategy employed by Intellectual Ventures is one where they approach an allegedly infringing company and demand that the company license the IV patent that's allegedly being infringed. When the company refuses, IV (or its nominee) sells the patent to an aggressive third party, who sues the infringer for a far higher amount than that originally demanded by IV.

IV (or the nominee) would then approach the infringing company again, demanding that the company license a different one of the IV's patents. This time, the company may be much more compliant.

This approach is also used by IV to prod its own licensees to toe the line, as was done in the case with one of Intellectual Ventures licensees, the Xilinx case (discussed at greater length in the Ewing Feldman article).

Specifically, if the licensee must make payments to an aggregator based on the licensee’s sales volume, and the aggregator believes that the licensee is being less than candid, the aggregator could sponsor an aggressive action by one of its proxies against an infringing competitor of the licensee as a way to demonstrate potential consequences to its recalcitrant licensee. This approach would be reminiscent of the old Chinese adage of “kill the chicken to frighten the monkey.”²

After primarily using third parties to file infringement litigations, Intellectual Ventures began suing companies directly. On a single day, Intellectual Ventures filed three large patent litigations: one against a group of software security companies, one against DRAM and flash memory manufacturers, and one against field programmable gate array (FPGA) manufacturers. The company has filed additional infringement suits against the parties in other jurisdictions including the International Trade Commission.

Both the strategies described above will be strategies pursued by AOS as well, but later, at the appropriate time in its evolution. Details of this future plan to incorporate litigation strategies into its business plan is detailed in the chart which follows.

The Archimedes’ Offspring Business Model: Superior in All the Important Ways to the Intellectual Ventures’ Model

Now, let’s compare the Intellectual Ventures model (which has clearly established itself as a successful business model when one judges it from every indicia other than the promise of “venture capital-like returns” promoted by IV’s founders) with the AOS model, and show the differences that make the AOS model superior:

Nature of Attribute	Intellectual Ventures Model	Archimedes’ Offspring Model
Mass aggregator model?	Yes	Yes
Primary means of mass aggregation?	Acquisition of mature IP from third parties (primarily dependent on “after the fact”, “hit-or-miss” due diligence, with higher acquisition costs	Organic IP development over time, utilizing experts at each stage of the development / commercialization process with overall lower acquisition costs (max. \$75k per invention)

² One of the authors of the Ewing Feldman article previously discussed the similarity between historic privateering and the activities of modern IP mass aggregators. See generally Thomas L. Ewing, “*Indirect Exploitation of Intellectual Property Rights by Corporations and Investors: IP Privateering & Modern Letters of Marque & Reprisal*” *Hastings Sci. & Tech. L.J.* (Winter 2011).

<p>Funding model’s investor type?</p>	<p>Venture capital / angel groups (sophisticated accredited investors), with promise of 8 to 10 times money back in 7 to 10 years</p>	<ul style="list-style-type: none"> • First stage, individual accredited investors who are given preferences, priorities and higher, effective returns; • Second & subsequent stages, public (mostly, non-accredited), mutual fund industry model w/ returns consistent with higher-quality real estate deals – 11% to 15%, based on independent inventor historical norm returns^{3 4}
<p>Degree of investment liquidity available to the individual investor?</p>	<p>Permanently low</p> <ul style="list-style-type: none"> • <u>non-litigation strategy</u>: dependent on sale, licensing or leasing of IP assets coupled with declaration & distribution of resulting sale proceeds or licensing/lease fees • <u>litigation strategy</u>: dependent on success of litigation and declaration and distribution of resulting licensing fees or damage awards 	<ul style="list-style-type: none"> • Initially, low (re: private deal with accredited investors; Note: however, these investors can convert to publicly-traded common stock to mitigate liquidity problem) • Ultimately, high (continuous rollouts of public offerings by each of the Invention Investment Families’ funds over time)

³ See, Thomas Astebro, “Basic statistics on the success rate and profits for independent inventors”, Entrepreneurship: Theory and Practice, December 22, 1998

⁴ Also, see, Andrew Spriegel, “Invention Success Rates | Odds of Inventor Success”, Andrew Spriegel’s Blog, November 24, 2010, and Thomas Astebro, “The Return to Independent Invention: Evidence of Unrealistic Optimism, Risk Seeking or Skewness Loving”, The Economic Journal, Volume 113, Issue 484, 1 January 2003, Pages 226–239.

<p>Fees and Carried Interest?</p>	<p>Fees: 1-1/2% to 2% of total invested by all investors. Example: aggregate of \$100 million invested = annual fee of \$1.5 million on a 1-1/2% fee.</p> <p>Carried interest: 20% (no vesting)</p>	<p>Fee:</p> <ul style="list-style-type: none"> Between \$1,000 and \$5,000/month for each AOS manager (between 5 - 10 managers at any point in time); average monthly cost per manager - \$3,000. Approx. annualized cost of fees at 10-manager level: \$360,000 This single, total monthly fee is shared proportionately among the IIF funds, based on each fund’s quarterly NPV (i.e., funds with a higher NPV, bear a higher percentage of the monthly cost) <p>Carried interest: less than 20% (approx. 19.19%); however, in addition, AOS’s “carried interest” is subject to a 4-year cliff-vesting (i.e., right to carried interest accrues upon 4th anniversary of issuance date of underlying Restricted Stock)</p>
<p>Utilization of litigation “monetization” strategy in addition to other methods of generating revenue?</p>	<p>Yes, as detailed in “Intellectual Ventures IP Litigation Strategy” described above.</p>	<p>Yes, as detailed in “Intellectual Ventures IP Litigation Strategy” described above, subject to one addition.</p> <p>In addition to incorporating the successful Intellectual Ventures litigation strategy, AOS will supplement this strategy by incorporating a “litigation leasing” strategy (<i>continued below</i>).</p>

<p>Utilization of litigation “monetization” strategy in addition to other methods of generating revenue? (cont.)</p>		<p>This will entail AOS maintaining a sort of “patent library” in which it will lease to third parties IP rights that will enable those third parties to sue other third parties who are infringers, returning the patent to AOS when the need has passed.</p> <p>Additionally, this will increase the value of “leased” IP, given that a litigation-tested patent is presumably more valuable than an untested patent.</p>
<p>Preferences / priorities given to first money in?</p>	<p>No</p>	<p>Yes. Series A investors get both liquidation and capital repatriation preferences.</p>
<p>Multiple funds?</p>	<p>Yes</p>	<p>Yes (e.g., the AOS IIFs’ various funds) (Note: Within a particular Family of funds, the funds within that family will be dedicated to a single industry or, with larger industries, a single industry segment).</p>
<p>Pursue litigation strategies?</p>	<p>Yes, as described in the section entitled “Intellectual Ventures IP Litigation Strategy” cited above</p>	<p>Yes, as described in the section entitled “Intellectual Ventures IP Litigation Strategy” cited above</p> <p style="text-align: center;">+</p> <p>Over time, by creating a powerful, in-house litigation capability second to none</p>

Additional Sources Relied Upon in the Preparation of this White Paper:

1. Market Watch, Article: “\$43M Awarded to Intellectual Ventures I LLC in Patent Infringement Trial”, Published February 20, 2019.
2. Harvard Business School Case Study No. 9-710-423: “Intellectual Ventures”, February 3, 2011.
3. Transcript: National Public Radio Broadcast, *All Things Considered*: “When Patents Attack”, July 22, 2011.
4. The New Yorker, Article: “In the Air: Who Says Big Ideas are Rare?”, May 12, 2008.
5. Article: Alan Boyle, “Inside the invention factory: Get a peek at Intellectual Ventures’ lab”, September 11, 2016.
6. CrunchBase, Company Entry: “Intellectual Ventures”.
7. Patently-O, Article: “Intellectual Ventures: Revealing Investors”, May 18, 2011.
8. The New York Times, Article: Steve Lohr, “Turning Patents into ‘Invention Capital’”, February 17, 2010.
9. Business Insider, Article: “Who Does Patent-Trading Firm Intellectual Ventures Work For, Anyway?”, author and date unknown.
10. Edward Lee, “Patent Trolls: Moral Panics, Motions in Limine, and Patent Reform”, Stanford Technology Law Review, 19 Stan. Tech. L. Rev. 113 (2015).