Blue ocean thinking

Building a portfolio in the present that has strategic value in the future is a challenge – but one that patent owners must confront head-on in order to secure the future of their businesses

By **Peter Cowan**

Creating real value out of intellectual property is not getting any easier. Business appetites for licensing and litigation have shifted; legal changes have redefined validity and appeal processes; and technology abandonment is happening faster than IP offices can grant patents. For executives and those in the investment community, the real task is to get ahead of today's IP challenges and to build and leverage a patent portfolio that sits in tomorrow's growing market space – the blue ocean market, where active IP coverage is available, yet untapped for business use.

At least four types of venture can hunt for these new opportunities using intellectual property as a strategic tool:

- large ventures and market incumbents;
- new ventures and start-ups;
- investors and venture capitalists; and
- internal licensing groups and external patent assertion entities (PAEs).

One common business intelligence links all of these venture profiles: each has access to the same dataset to find the untapped patent trends that intersect with market opportunities. The difference is how each venture needs to approach the data and information within its business to find untapped patent opportunities.

To see the opportunity clearly, we need to consider that many product-based ventures drive future growth by positioning themselves to own a large commoditised base of the future growing market. The technology adoption lifecycle describes how a market develops for a new product category – from early adopters to early majority, cresting before late majority and then trending downwards with market laggards. With the bulk of the market opportunity in the early majority and late majority stages, it is beneficial for firms to be well positioned with products and intellectual property going into the early majority stage.

For technology-driven markets, untapped patent-based opportunities on which to capitalise can be found if we understand the link between today's and tomorrow's market evolution.

More specifically, as mass consumer adoption of a technology takes place, the required technology infrastructure is built, enabling the creation of a second generation of consumer markets. It is this link between the intellectual property of mature-market technologies and the new growing markets that can be leveraged.

As an example, traditional energy firms now support smart home and smart vehicle technology, whereas previously all three were independent of one another. As technology advances, product offers mutually support each other with cross-segment coverage and the line between market offerings is blurred. This becomes an invaluable asset for any venture that uses this as a competitive advantage.

So where will this blue ocean patent protection come from? From the patent perspective, the volume of market-useful filings is likely to correlate inversely with the curve: volume of novel intellectual property is high when technology is in the early adopter stage, with more patents filed

on incremental improvements as the market moves to the late majority stage. However, as new technologies build on existing platforms, a link forms between patents which protect late market technology, but which can be applied to cover new evolving markets. The resulting opportunity is defined by patents that were originally drafted for one market use, but can now be expanded to cover new markets.

Large ventures and market incumbents

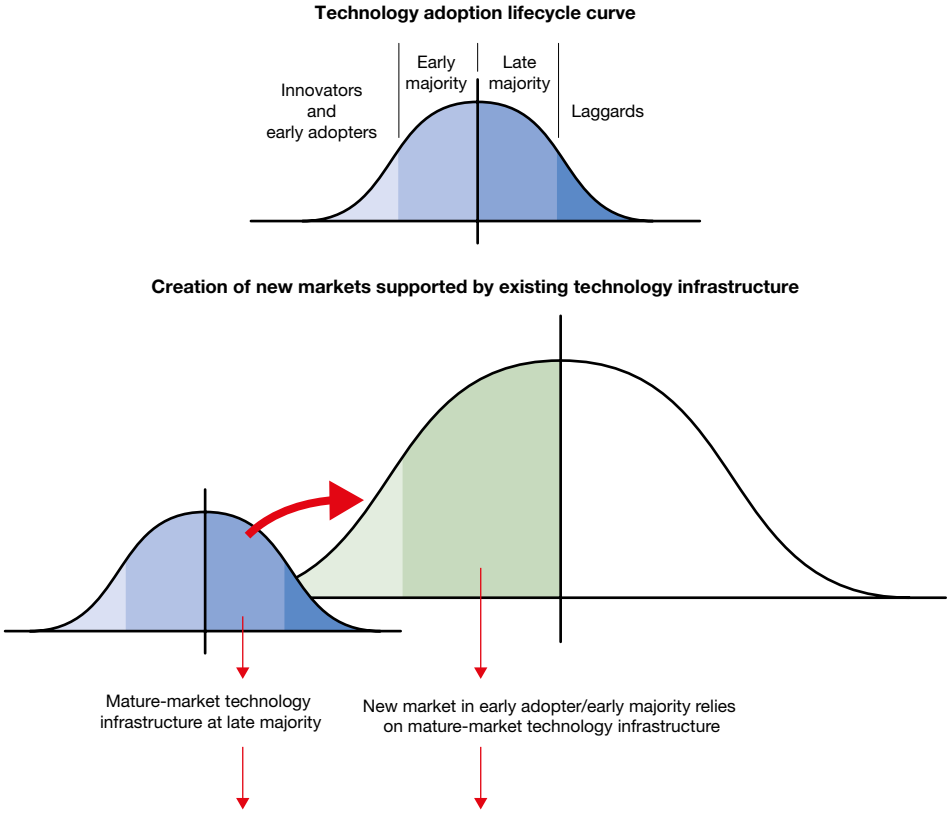
Late majority incumbents can profit from early adopter-driven ventures. A mature venture's growth can be expanded by identifying patent-driven market opportunities. Few firms expand or innovate by accident: there is a conscious effort to identify new opportunities and new markets.

For many companies, specifically those in the Fortune 500 realm, growth through acquisition is a key path to meeting growth targets. Acquisition targets are identified in several ways, but one consistent strategy is for a larger venture to identify a gap in its technical or service offering within the overall corporate offering, and then move to fill that gap with a smaller but growing venture – the Inc 500 feeding the Fortune 500. When new markets and products are being considered, larger ventures are also looking to position themselves as the first mover to capture future growth as a market opportunity becomes mainstream.

In this view of the future markets, there are opportunities for Fortune 500 or other market leaders. General Electric, General Motors, HP and IBM are among the top Fortune 500 leaders which are rooted in technology and which actively support the late majority market. These companies create technology products which support the existence of large markets, such as energy infrastructure, automotive designs, server designs or data-centre infrastructure. With their research-driven IP programmes, these companies have large portfolios of older patents supporting this now-mature market. The ownership of intellectual property, combined with growth through acquisition plans, is where opportunities exist. As new markets evolve which require the use of the current technology infrastructure, a small volume of valuable patents likely exists that anticipates the new markets and includes today's new use in the existing claims.

For incumbents of energy grid technologies which also possess a large patent portfolio based around smart-

Figure 1. **Creation of new markets based on old technology adoption lifecycle**



Market segment & TALC position	Smart metering installations	Smart grid utilising smart metering infrastructure
Global market notes: (annual estimates in $)	Electric smart meter market estimated at $5 billion in 2014 and as high as $22 billion by 2020	Smart meter technology supports portions of various markets, which when combined will outstrip the original installation market size. For example: • Smart home – $47 billion by 2020 • Smart thermostat – $1.3 billion by 2020 • Demand response – $51 billion by 2025 • Vehicle to grid and buildings – $290 million by 2022 • Home energy management devices – $100 million by 2015
Patent owner notes:	Top patent holders include traditional energy companies such as Elster, Itron, Landis & Gyr, Sensus, General Electric, Schneider Electric, Siemens, Current Technologies and TransData	Top patent holders include consumer device manufacturers, technology giants and automotive manufacturers such as LG, Panasonic, Samsung, General Electric, Toshiba, Honeywell, Google, Apple and Honda

A case study: today's smart meter patents support tomorrow's smart home products

The smart grid is an example of where the infrastructure required by late majority markets is now required by new smart home technologies. Industry market reports expect the smart grid demand response market to have been worth $5 billion in 2013 and – growing at a compound annual growth rate of 21% – to be worth $52 billion by 2025. Demand response is when consumers change their electrical use in response to changes in electricity prices over time or to incentivise payments to reduce energy use in the current moment. While this technology has been used on the utility side of the industry for years, demand response is finally pushing to early majority for the residential market.

One of the barriers to demand response adoption in the residential market was the deployment of residential smart meters. This roadblock is now being dismantled on a global level. Countries such as Italy and Sweden are completing countrywide deployments of smart meters, while others, such as the United Kingdom, will be spending upwards of $900 million on meter deployment and infrastructure over the next 15 years. With smart meters in residential homes, the infrastructure now exists for companies such as Nest and Honda to take advantage of new market opportunities.

In 2013, smart thermostat company Nest unveiled residential demand response programmes with Austin Energy, Green Mountain Energy and Southern California Edison, which all use the Nest thermostat as a platform for managing energy during peak times. Other smart thermostats by Honeywell and OPower offer similar demand response services, again using smart grid infrastructure.

In 2014 Korea Electric Power Corp announced a pilot system of Vehicle to Grid (V2G), where car owners can sell their electric vehicle battery power back to the grid. In the early adopter stage this requires smart meters and the associated smart grid infrastructure as support. V2G technology is supported by Honda with certain plug-in hybrid vehicles and is not driven by cost benefits for the consumer; rather, it is driven to support the overall power grid and to identify when energy demands require additional power-grid sources, such as from connected vehicles.

These types of venture have one thing in common: they play in the smart home technology area which relies on yesterday's smart metering infrastructure. To succeed in the long term, they all have to continue to grow their IP portfolios, which contain offensive and defensive positions around both the smart meter infrastructure and as smart home applications.

metering technologies, there is a valuable opportunity to match older meter and demand response-related patents to new smart home-related technology companies which are taking advantage of the available smart grid infrastructure. For example, transmitting data from meters to industrial devices to help control energy use is now commonplace in many smart home technologies being released onto the market and is at the early adopter stages for electric automobiles.

While the technology between industrial and residential meter use for building automation is fundamentally the same, a new market has emerged for new ventures that rely on residential meters for transmitting data to smart home devices or vehicles. In other words, this is a shift in market use rather than in the underlying technology.

For established ventures with older portfolios, this provides a tangible action to consider: mining and reviewing portfolios for patents that have claimed support for the newly created markets. This translates into finding patents to support existing market infrastructure that is now considered mainstream – in other words, the patents that now cover the late majority market and can be applied to the new early adopter markets.

While established Fortune 500 ventures do become top of mind for portfolio mining, other smaller yet established companies have, over the years, built moderately sized, but industry-specific patent portfolios. As the market matures, these can be reviewed for parallel new market uses. This results in at least three key advantages for the IP team within the large ventures.

First, it provides a mechanism of cost rationale over existing portfolios. The maintenance fees for large portfolios can be millions of dollars; having a new business opportunity tied to the maintenance costs for specific patents supports the IP team's budget. In addition, it can act as a forced new-market review mechanism and a business-analysis component to maintenance-fee decisions.

Second, it provides insight into where existing patents can be monetised in new markets. Comparing the patents against new markets gives some indication of the volume and depth of deal flow that can be created in the form of a licensing programme.

Third – and likely most important, given the growth needs for Fortune 500 companies – it helps to identify key areas of acquisition and supports a growth through acquisition plan. Within these acquisition discussions, it provides intellectual property as leverage on the purchase price, in the knowledge that the acquisition may need a licence should the deal fall through. For intellectual property in the current portfolio, this provides a critical strategic data point for markets that can be expanded into via acquisition.

In technology-rich markets where intellectual property is a strategic tool, having existing intellectual property that proves foundational to new markets can prove critical to future market leadership.

New ventures and start-ups

New ventures are almost a mirror image of the Fortune 500 companies discussed above: they are nimble and have to move quickly to satisfy customer pain points using a market-ready product. They are focused and only have enough time and resources to solve a small piece of one

Table 1. **Key strategies of ventures in pursuit of blue ocean intellectual property**

	Large ventures and market incumbents	New ventures and start-ups	Investors and venture capitalists	PAEs and internal licensing teams
Key business challenge	Mature markets which are slowing in growth and lacking R&D releases to cover the new markets.	New market may have uncertainty of customer adoption, so future business and IP efforts may be market irrelevant.	Increase deal flow of high-quality investments; intellectual property as core business intelligence is not a fundamental pillar of all investment reviews.	Generation of licence revenue through quality intellectual property.
Key strength to leverage	Deep and/or market-specific patent portfolios already owned by the venture, which can be assessed by internal experts.	Ability to pivot quickly and ensure IP filings are widely covered to support long-term market changes.	Focusing on one technology or market segment gives deep business and IP knowledge which, once established, can be leveraged across due diligence reviews.	Funding or access to quality patents from internal businesses or via portfolio acquisitions.
Key IP actions	Mine and review portfolios for coverage against new market uses.	Mine enabling technology portfolios and business trends to find optimum strategic position for both intellectual property and technology.	Perform an IP-focused business intelligence analysis on primary and secondary target markets to define the optimum IP investment profile; uncover new investment opportunities via patent data.	Assemble expert team of business, legal and technical skills to collaboratively mine for opportunities that cross markets.

problem. In addition, they are fixated on delivering to one beach-head in one market vertical. Unless finances supporting unfocused ventures are not an issue, anything deviating from these points is likely to result in failure or at least a re-pivoting by the management team.

Contrary to Fortune 500 growth-through-acquisition plans, many high-growth technology ventures do have plans for at least a partial exit through a venture sale. This is because without the plan of a liquidity event, investor opportunities are limited. While only a small proportion of new start-ups are acquired by Fortune 500 companies, a moderate proportion still end up being acquired, either by a larger venture in a similar technology space or via a venture capitalist or investor.

This puts new ventures in a unique position. As products are being developed and validated by potential customers, long-term exit plans can be made. This approach allows technology development that maximises future exit opportunities using intellectual property as a tool.

The goal of any new venture is to understand the technology and IP landscape, and its position relative to current and future competition. For new market-based ventures looking for future acquisition, this provides two similar avenues to follow when mining incumbent portfolios. The first is mining portfolios to ensure that technology advancements have freedom to operate; the second is mining portfolios and business trends to find the best complementary position to take as technology is adopted.

The latest actions at Ericsson make it an interesting company to consider from a new venture perspective. In late 2014 Ericsson bought Ambient, a provider of communications technology for utilities that want to roll out smart grids. Even though Ambient is a bankruptcy-driven acquisition, it followed Ericsson's mid-2013 deal with European power grid utility E.ON, where Ericsson provides software and services to manage the big data and analytics generated by E.ON. While Ericsson's IP portfolio does not list many data analytics-focused patents, a business analysis indicates that it is looking at data-driven efficiency improvements in a number of areas, from energy and transport to agricultural and environmental. For new technology ventures which generate large volumes of data as a secondary feature, this is an indicator that other larger ventures (eg, Ericsson) are now considering big data as a real and integral competitive advantage of data-rich companies. From Ambient's view, the sale provides intellectual property to support areas where Ericsson needs to expand.

All growing home automation-based companies — such as Revolv, Staples Connect and Lowe's Iris brand — are positioned to collect and manage data. However, once the devices become commoditised, it is access to the home system and connectivity that future corporate buyers will want, because of the big data analytics information about consumer habits that can be generated. As an executive or IP manager in a small start-up in this technology area, the tasks can be translated into the following actions:

- ensuring that patent protection is filed for the enabling technology behind the device;
- finding a future partner profile which supports the enabling technology; and
- ensuring that a portion of the development and IP protection path covers the trend in question.

The result is a visionary portfolio that can be used to secure and protect market leadership.

Investors and venture capitalists

Investors sit at the point where new ventures grow into larger ventures, which puts them in a unique position relative to new, IP-based market opportunities. Investors can combine IP and market knowledge to create a target investment profile that can be used to increase the quality of their deal flow.

Venture capitalists which focus their investment in one industry are at an advantage because the investment partners can leverage their deep understanding of a market to link the current investment opportunities before them, the intellectual property that may exist in this opportunity and the future market trends of larger entities which might be realised from a liquidity event.

As an example, Chrysalix Global Network focuses on the clean-tech industry and invests in companies with profiles that help to reduce the cost of utilities, energy use and environmental footprint. One of the firms meeting the Chrysalix investment profile is AlertMe.

Founded in 2006, AlertMe provides simple and affordable smart home energy management and connected home services, both directly to consumers and indirectly through channel partners. There is an overlap between the services that AlertMe provides and those of the larger smart appliance manufacturers (eg, LG, Samsung and Siemens) in the smart home market segments, as the line between home automation and consumer goods begins to blur. A review of AlertMe's patent portfolio shows a relatively modest portfolio — under 50 filings — with a focus on home energy use and power consumption monitoring. The portfolio also covers a mobile phone location-based system for controlling heating or cooling appliances. For appliance manufacturers such as Samsung, which also manufacture mobile phones, there is now a more interesting reason to dig deeper during investor due diligence. This type of action can potentially be used for demand response, which, as mentioned above, is a $52 billion market opportunity.

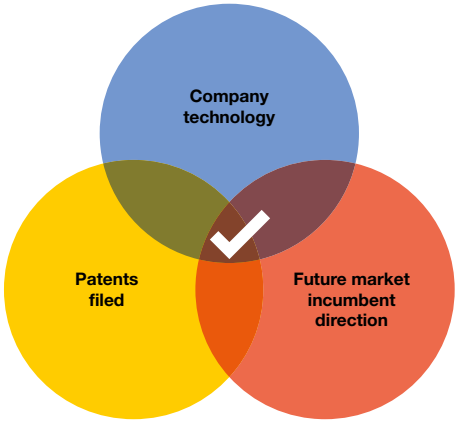
A venture with a profile such as AlertMe has relevant intellectual property that fits both the current and future smart energy industry, opening up opportunities for leverage from the investor's point of view. While this type of data may not be the primary reason for investing in a venture profile for an investor, it is beneficial to have a robust business-focused IP review as part of due diligence, in order to ascertain whether new high-growth markets can be accessed via the invention — if only via a licensing programme.

As an investor or venture capitalist, the IP-based due diligence process can be translated into ensuring that there is due diligence centred on the strategic aspects of intellectual property. For venture capital firms that focus on one market segment or technical area, the key action is to look at the entire segment in which they operate from a strategic IP view and embed the IP profile into the new venture analysis review process. This can be broken down into the steps of reviewing and segmenting the patents into depth and breadth of protection based on at least three perspectives:

- within the current technology applications;
- within collaboration or secondary applications and markets; and
- with extension into future market movements by other incumbents.

This methodology allows for investments to be reviewed against growth potential not only from a traditional business sense, but also from a future licensing position. It defines the desired venture investment profile in more detail, which lets the investor identify new companies for investment via patent file databases. A tangible result is increasing the deal flow for small ventures which may not actively be looking for investments.

Figure 2. **Investors must ensure that their venture has patents granted in the areas of the company's technology direction and where the market incumbents are moving**



Internal licensing groups and external PAEs

Independent PAEs and internal company licensing entities in Fortune 500 companies both have the same goal: to generate licensing revenue from intellectual property. With this single driver, licensing groups have perhaps the most straightforward task of compiling a patent portfolio that maps on to products in active industry use. They are in the unique situation of looking to leverage the best positions for the aforementioned Fortune 500, Inc 500 and investor positions.

To reiterate the large venture view that was described above, as new markets evolve requiring the use of current technology infrastructures, there are a small volume of valuable patents that have anticipated those new markets. Licence-driven entities that have access to large venture portfolios can therefore use these to generate licensing revenue.

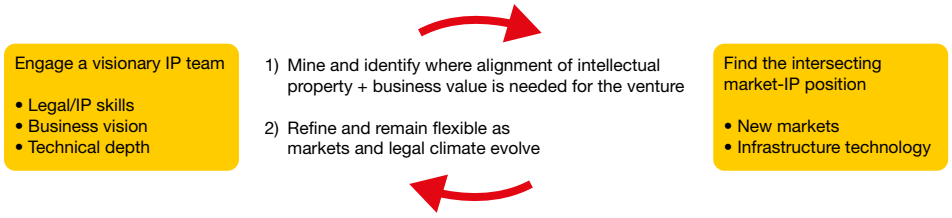
In June 2014 the *Wall Street Journal* reported that out of the technology companies competing in the smart home landscape, Samsung is filing the most patents related to home automation, citing research by Thomson Reuters Intellectual Property & Science. Samsung has filed nearly 150 US patent applications related to home automation in the past 14 years – roughly twice as many as second-ranked Sony. Overall, Thomson Reuters noted that the number of home automation-related patent applications filed by all companies has exploded over the past four years.

With few actual smart home products released before 2010, but IP filings going back 14 years, Samsung could be in a positive position with regard to a smart home licensing programme, merely by mining its own portfolio. With a projected smart home addressable market size of over $40 billion by 2020, this opens up future licensing opportunities in today's fragmented smart home market while the technology is still at the early adopter stage.

Likewise, from the small venture view, many smaller ventures have reached the end of their lives –from either lack of funding or a demise of their projected market product – which can be leveraged for new market intellectual property by licensing programmes.

One such venture was Secure Electrans, a secure payment software house which created HomePay, a chip and PIN payment terminal for home energy use. The business initially focused on developing technology linked to smart meters and transferring meter readings, but it has evolved to provide a range of secure online card payment services to tackle the problem of card not present fraud. Secure Electrans began in 1999, but wound down and was put into receivership in 2014, with its IP assets sold off. Its patent portfolio is small – fewer than 50 active patents – and generally focuses on utility payment via smart meters.

Figure 3. **Integrated action plan**



Again, looking at secondary opportunity markets, the intellectual property revealed that coverage for a larger addressable market opportunity could be protected if the intellectual property was acquired by a licence-driven entity: in the portfolio, there was at least one pending and granted patent family that focused on demand response in the home. Given that only a single granted claim set covered this specific technology, it was likely added as an afterthought during prosecution. For the licensing entity, this is an opportunity to leverage the portfolio and license into markets outside the core intent. Recalling the case study, the demand response addressable market opportunity is projected to be $52 billion by 2025 – significantly larger than the market for which these patents were originally drafted.

Licensing groups can follow the same steps as are recommended for Fortune 500 and Inc 500 companies, except that they will potentially have a different available patent pool to review to see how they can be applied in the context of both current markets and new emerging markets.

In practice, this requires at least three skill sets to work: legal, business and technical. While all three can be found in some experts, generally it takes a team to carry out the market and technical review in order to identify the hidden opportunities in the claims and a legal analysis to assess validity and claim mapping. For PAEs looking to purchase low-volume but high-quality patents, having the right skill set on a licence team will be the critical success factor.

Blue ocean markets

Although patents can be tools to extract opportunity from an already fully defined market, this approach uses patents to determine how to generate opportunities in

Action plan

To find blue ocean patent opportunities, the tasks will vary slightly by venture, but the fundamental actions will remain the same:

- Create a visionary team – it will not be enough to assemble a tactical team which can technically or legally find new patents; it will require a highly skilled team which can create a business vision of where the venture needs to go and keep the tactical team on task.
- Understand the markets – every market, segment and geography moves at a different adoption pace. The visionary team must have both a broad and a deep understanding of the markets to see the blue ocean trends emerging.
- Anticipate – the team must be flexible in how it approaches and builds the portfolio. Treating IP assets as a mutual fund creates a balanced portfolio that will cover the shifts in legal and the business climate. For a visionary team, this translates into predicting and weighing the probability of market shifts and shaping the portfolio accordingly.

new and growing markets where there may not be any clear leader. It is about applying existing patents that have protection around the blue ocean markets.

Throughout the past decade, there has been an upward trend of monetisation from patent assets owned by ventures. In the early 2000s David Kline and Kevin G Rivette published *Rembrandts in the Attic* which, back then, many mainstream boards used as their call to arms to push their C-suite executives into finding ways to monetise intellectual property which was lying dormant.

A few years later, the trend of non-practising entities became commonplace in the IP world and mature licence programmes from technology-driven companies, such as Philips, became another benchmark for intellectual property linked to business success.

At the same time, a sprinkling of Supreme Court cases redefined patent law, as large patent licence pools based on bankrupt giants such as Nortel and Kodak were being created.

Throughout all this, there remains one consistent theme: business use and patent law may shift, but there will always be incredibly valuable patented inventions that are available to apply in new markets and that rely on the infrastructure and foresight of yesterday's technology.

A key point is that all types of venture – Fortune 500, Inc 500, investors and PAEs – need access to the same market data and patent information. The key success factor is building a visionary team that can connect the older technology platforms between patent and new market opportunities and pair them with an operating team that can execute the opportunity. Those that can do this will be the ones to capitalise and monetise the new blue ocean markets. *iam*

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