Why start-ups should get serious about patent protection

Only a small percentage of the world's tech start-ups develop a patent portfolio of any depth, but failure to align IP strategy with long-term business objectives could cost companies millions down the line in litigation and licensing fees

By Bridget Diakun

US cloud computing company ServiceNow became the darling of the venture capital community in just eight years, raising millions, building a vibrant user base and setting tongues wagging on Wall Street over when, not if, it would go public. It was a typical Silicon Valley story. But – in what has also become common among the denizens of America's tech hotbed – the company owned only a small number of patents. Data shows that that has become all too familiar among the world's headline-grabbing unicorns – the term coined in 2013 to describe start-ups that tip the scales at more than $1 billion. Today, over 370 companies have achieved this status.

Any IP professional will argue that patents are key to budding businesses, particularly in the pharma and high-tech sectors. Yet, an overwhelming number of unicorns, and more broadly smaller and medium-sized enterprises (SMEs), lack such protection. So what is going on? *IAM* has spoken to a range of industry professionals to better understand the practical difficulties for SMEs as they grow, the risks that companies face as they reach unicorn level and how to mitigate these issues. For ServiceNow that risk was made abundantly clear by infringement suits brought against it by HP and BMC in the year of its initial public offering (IPO). The cost to settle was $270 million.

Picture: MarinaMonroe/ shutterstock.com

For companies that are expected to be market disruptors, strong IP protection is critical to success – insufficient protection can not only result in the loss of millions but can even threaten the very survival of the company. "Being IP ready is not something that is going to add value to your company *per se*," argues Kurt Brasch, who led Uber's pre-IPO buy campaign. "But not being IP ready can definitely subtract from it."

Short-term gain obscures long-term strategies for start-ups

The Intellectual Property Office of Singapore (IPOS) is one entity that is drilling the value of intellectual property into the minds of local SMEs. "In a future economy driven by innovation and digitalisation, it is important to help our SMEs rethink and reshape their business models so that they can use their intangible assets to grow," explains Daren Tang, chief executive of IPOS. The office has introduced a number of initiatives and arrangements, such as patent-acceleration programmes, to help smaller businesses scale up through the commercialisation of intellectual property.

IPOS's outreach has gained traction, with almost 700 individuals and companies using its complimentary IP business and legal clinics to seek preliminary legal advice. "Growth rates for IP filings in Singapore in the last decade have generally been above our GDP," explains Tang. "Between 2014 and 2018 total IP applications in Singapore grew by a compound annual growth rate of 5.4%."

Private practitioners from key markets agree that their local SMEs are more tuned in to the patent market. "In recent years, the trend of Chinese SMEs paying greater attention to patents has become increasingly apparent," observes Xiaofan Chen, head of patents at IP consultancy firm AWA Asia. "They are gradually realising that patents can provide them with a favourable position in an increasingly crowded, fierce and competitive marketplace."

The highest level of engagement is within the high-tech and pharma sectors. Companies operating in these industries generally understand that patent protection is a key element of growing their businesses, especially given the fact that a strong portfolio is one of the first things that investors will ask about.

Unsurprisingly, these SMEs struggle to build up their holdings due to budgetary constraints. "In the very early stages of a start-up, there is generally a vicious circle that needs to be broken," says Henri van Kalkeren from European law firm VO. "Funding is required to file for intellectual property, while intellectual property is required to get the funding to file for it." To counter this, he suggests an initial filing "wherein the protection of an invention in broad terms is sought".

The protection of core technologies is the highest priority when it comes to SMEs, but there are other things that start-ups can do to give themselves a competitive edge.

Manuel Söldenwagner, a partner at German-based law firm Eisenführ Speiser, often advises SMEs after they have been approached by potential new investors. In his experience businesses tend to obtain sufficient baseline protection and ensure that rights are transferred to the business, but many miss out on the bigger picture. "We have many start-ups that underestimate issues relating to freedom to operate," he maintains. SMEs refrain from this analysis, often due to its higher cost, and also fail to take advantage of a relatively cheap service: patent monitoring.

Chen highlights the strategic importance of this activity. "Patent searches are helpful to understand the focus and any gaps in the portfolios of competitors in a sector and adjacent industries," he explains. Söldenwagner adds that this forward-thinking strategy is often employed by large entities but is overlooked by SMEs.

When it comes to patents it seems that SMEs view these protections as a short-term necessity, rather than part of a long-term strategy. Managing partner at JurisAsia, Sheena Jacob, highlights the need to communicate the 'why' factor to management in order to align these assets with long-term objectives. "Often SMEs file for protection and then lose their focus or strategy 12 to 24 months later," she observes. Others argue that the conversation around protection is critical when a start-up is established, as this is the best way to bring business value and build the portfolio in a way that works for the start-up as it grows.

The majority of start-ups operate within highly technical fields and are thus aware of the need for basic protections of core technologies. However, there is a

Kurt Brasch

"The theory we have developed is that unicorns change their patenting behaviour as they approach an exit event or enter a new market"
Efrat Kasznik, Foresight Valuation Group

TABLE 1. Breakdown of unicorns by region

Unicorns: Asia	Number of grants and applications
ByteDance	327
DiDi**	121
Grab**	14
Bitmain Technologies	143
DJI Innovations	2,156

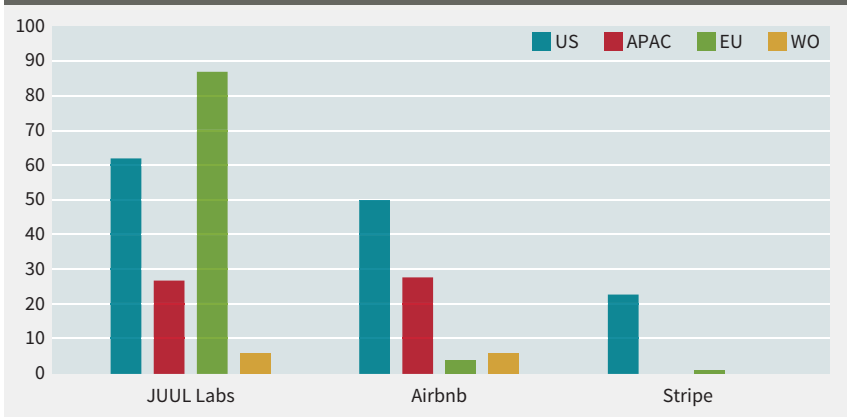
Unicorns: North America	Number of grants and applications
WeWork	0
JUUL Labs	209
Airbnb	142
Stripe	48
SpaceX	0

Unicorns: Europe	Number of grants and applications
Global Switch	0
Roivant Sciences	197
Auto1Group	0
Otto Bock Healthcare	1,321
Greensill	0

Source: CPA Global's IP Intelligence Software, Innography, **Anaqua's AcclaimIP Analytics Software, note: these businesses may possess other IP rights such as trade secrets or trademarks but these assets were omitted from this search

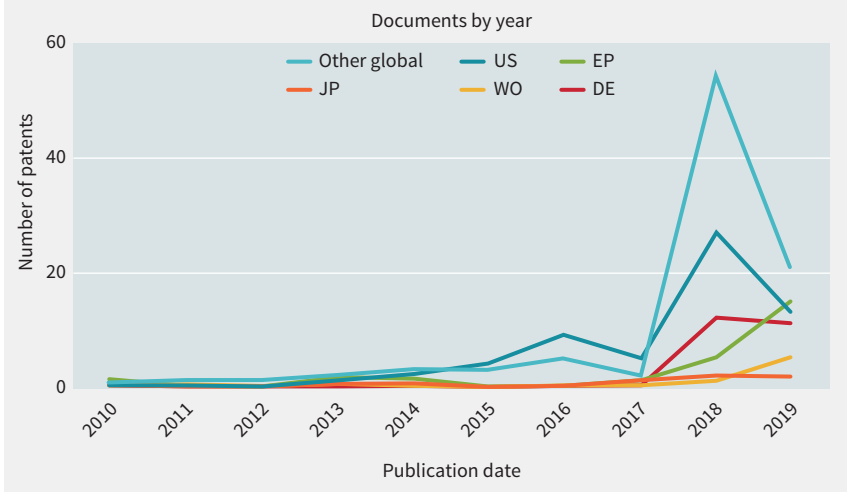
limit to their understanding of the value of intellectual property, with many trying to fulfil the requirement to satisfy investors or taking the bare minimum precautions to avoid litigation. Yet there are far more reasons to seek IP protection.

FIGURE 1. US unicorns – geographic coverage



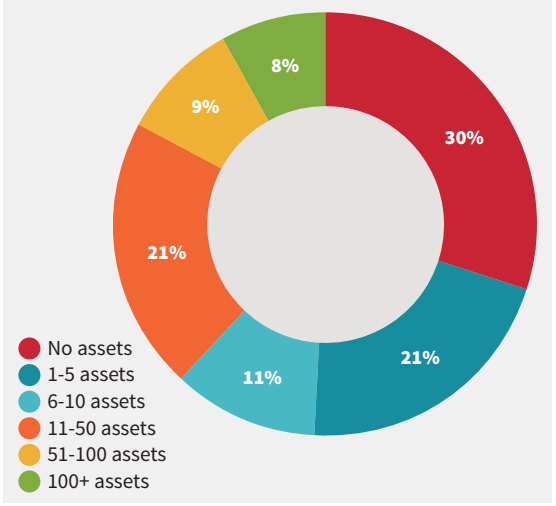
Source: Anaqua's AcclaimIP Analytics Software

FIGURE 2. JUUL Labs filing activity by active grants and applications



Anaqua's AcclaimIP Analytics Software

FIGURE 3. US unicorn IP portfolio breakdown



Source: The Naked Truth: 30% of US Unicorns Have No Patents, Efrat Kasznik and Lynn Dudinsky

IAM analysed the top five unicorns from Europe, Asia and North America to understand how these potentially high-value businesses have incorporated patents into their business strategy and at what stage of their development this happened.

Today's unicorns reflect the general trend

Just over 65% of the unicorns analysed owned patents, with Asian companies showing the most consistent investment in these assets (see Table 1).

Efrat Kasznik, president and founder of Foresight Valuation Group, an IP valuation, strategy and economic consulting firm, has extensively researched unicorns and their patent strategies. "The theory that we have developed is that unicorns change their patenting behaviour as they approach an exit event or enter a new market," she says. A number of the companies listed in Table 1 are openly preparing to go public, while a smaller number have taken tangible steps towards doing so. WeWork, a US company that provides shared workspaces, and Global Switch, a data centre, are two businesses that have pushed to go public, with Global Switch preparing to file in Hong Kong having selected its banks. While WeWork does not operate in a high-tech space, Global Switch is one of the leading market players for cloud and the Internet of Things storage technologies, competing with the likes of AT&T and Dell. Its lack of patent protection is therefore a surprise.

Of the remaining unicorns, ByteDance, a Chinese internet company, and Airbnb are expected to go public in the near future and are some of the most highly anticipated tech IPOs.

ByteDance's portfolio has grown exponentially in just the past year, coinciding with its IPO plans. A majority of its portfolio consists of Chinese patents but recently there has been an increase in its US filings. Of its portfolio growth, 73% was filed in 2018, which means there was an uptick of 808% in activity throughout 2017; this is likely to increase as more filings are published. Airbnb has a decent sized portfolio given its age, and its patenting activity is still on the rise, up 54% in 2017 according to CPA Global's IP Intelligence Software.

The largest patent portfolio is held by DJI Innovations, a drone manufacturer, with 2,156 patents (grants and applications). According to CPA Global its filings peaked in 2016, 10 years after the company was founded. Each of the Asian unicorns file overwhelmingly in the Asia Pacific region, with only ByteDance making significant headway in the United States.

Otto Bock Healthcare has one of the most mature portfolios, with its average age of patent by publication date clocking in at 5.18 years according to Anaqua's AcclaimIP Analytics Software. The company has been around since 1919 and its CEO has confirmed that it will not be filing for an IPO before 2020.

The US unicorns that have built patent portfolios have opted for geographic diversity, filing more actively across jurisdictions than the European and Asian businesses analysed (see Figure 1).

JUUL, an e-cigarette company, has a notable patent portfolio in terms of both size and diversity. It was spun-off from Pax Labs in 2017 and in that year its filings skyrocketed (see Figure 2).

Stripe has a small but seemingly valuable portfolio, focusing on digital payment services. According to Anaqua's AcclaimIP Analytics Software, the San-Francisco based company has a much higher level of citations on average than the other unicorns studied, with Google and Visa appearing as forward-citing assignees.

The unicorns with the highest volume of patents are those that experience high-growth levels in the run-up to an IPO or that have grown beyond start-up level to have the necessary funds to grow their portfolios. It is impossible to know whether these businesses developed an IP strategy from the very beginning, but this data does indicate that intellectual property is a key part of their overall business strategy.

While some of today's top-ranked unicorns are IP savvy, Kasznik's research showed that 30% of US unicorns had no US patent assets, while about 62% had 10 or fewer US patents (see Figure 4). This is a significant issue, as companies with strong revenues and a market presence are much more likely to become targets not only of litigation but also of corporate asserters.

Corporate asserters prey on unicorns, but a defensive strategy can save millions

Patents do not only serve to protect a company's core technologies, they can also be used to defend against, and prevent, attack from corporate asserters.

Companies with revenues running north of $100 million and reaching $1 billion benefit from paying attention to risk. This is the point where they are more vulnerable to corporate asserters, especially if they lack substantial patent holdings, says Kent Richardson, co-founder of Richardson Oliver Law Group.

The goal for companies within the high-tech sector is to achieve freedom of action, rather than freedom to operate. "In high tech you really cannot get away from building on the shoulders of giants," Richardson points out. "So a viable strategy is to get enough patents so you have freedom of action to produce the products you want, within reason." Generally, the more patents a company has, the less attractive it becomes to asserters.

Amassing patents acts as a deterrent to corporate asserters and can allow a business to either eliminate or reduce payments to these entities. The portfolio can be


Kent Richardson

The dealmaker's perspective


Elvir Causevic

Elvir Causevic is managing director and co-head of Houlihan Lokey's Tech+IP services practice – a role which means that he advises a range of companies at various stages in their business and patent lifecycles. *IAM* spoke with Causevic about why SMEs need to place a greater focus on developing a patent portfolio and about the potential risks and pay-off of this approach.

How do companies learn about the best practices for mitigating risk and increasing opportunities?
Best practices are always derived by looking at peers and what peers are doing. Most importantly looking at peers across different industries. There is a lot to be learned – tech start-ups learning from medical device start-ups who can then learn from hardware companies and others.

Are companies reactionary or proactive when it comes to building out their portfolios to mitigate risk?
For the most part companies are reactionary but there are some exceptions. The big difference when it comes to being proactive is the chief intellectual property officer (CIPO) – when they were hired and how early it was in the process and how experienced that CIPO is.

What are the most important trends in the market?
There are several important trends. Over time unicorns have certainly grown wiser to IP risk, as well as IP opportunity. For a long while there was an air of "patents don't matter". The venture capital community would say "don't spend too much money on patents, especially if you are in software because patents are dead, so there is no need to worry about it". But it turns out patents are more resilient than anyone thought. People are now paying more attention to patents than they were five years ago.

The second major trend is that while companies are hiring better CIPOs there is less awareness of the value of patents at the senior executive level. It used to be that tech companies were founded by tech people who intrinsically understood patents. And now a lot of the companies are based on some marketing approach or some product or some insurance, and tech is really not the focus of the executive team but is critical to the company's success. The start-up is more about customer service or marketing rather than the underlying technology. So that means there isn't an intrinsic understanding of the value of intellectual property at the senior levels of the firm for some of them.

What are the risks for unicorns that put patents on the back burner?
From a licensor perspective, they are looking for sitting ducks. If you are an operating company as well as a licensor you don't have to be a genius to figure out you should go after companies that are rich but don't have patents and can't come back and attack you. You will go after the big ones that have no patents. So that's what drives this. You are inviting trouble by not doing something with patents early on.

What is the most important thing to impart on unicorns who are building out their portfolios?
One size doesn't fit all. That's critical. Each situation is fact dependent. You can make a strong economic case for acting early based on solid data. I think people also forget that you need to buy defensive patents in two categories: category one for the product that you have, and category two for whatever your licensors are making the most money on. It may have nothing to do with your own technology areas. A counter-assertion strategy has to be pointed at the profit margin of the licensor's best product, and by best it means where they are making money and what their own growth strategy is. Also, be prepared going into negotiations, not with litigation posturing or worn out anti-patent tropes, because everyone does that, instead be prepared with facts, data and evidence to reduce your exposure.

For unicorns the first thing is to get to market and make sure they reduce licensing and litigation exposure. However, I would advise them for the long-term interest of the long-term shareholders to really invest in patenting if they are blazing new ground. These unicorns can build tremendous value for their shareholders and themselves by patenting if, for example, 10 years down the road they do not make it. So, in some sense clever patenting is a smart insurance policy if they're true innovators. If things don't work out so well, those without patents are dead and wiped out. Those that are clever with patenting their inventions, if they are high-quality inventions, can benefit though by generating significant returns on these for their shareholders.

Case examples

Even companies that are known to be anti-patent can be seen building out their portfolios both organically and through acquisitions.

Houlihan Lokey conducted an analysis of enterprise software companies and their patent positions before IPOs. Although a majority were in possession of patents pre-IPO, 20% were not – a significant chunk given that this is a highly technical field. The number of companies which purchased patents is even fewer, indicating that this strategy is still not a mainstream practice.

TABLE 2. Enterprise software portfolio strategies pre-IPO

Sample set: (January 2016-November 2018)	39 enterprise software IPOs in the United States
Companies with patents at IPO	~80%
Companies with patent acquisitions pre-IPO	~30%
Companies with organic portfolios pre-IPO	~70%
Organic/acquired portfolio share	37% acquired assets/ 63% organic assets

Strategic patent acquisitions can be highly beneficial. Below is a comparison of ServiceNow against Twitter, Snap and Pure Storage to show the potential pay-off of building out a portfolio through savvy purchases.

ServiceNow

The US cloud computing company went public in 2012, but its earliest organic patents did not issue until 2015. This meant that it had a constrained freedom to operate. In 2014 it was sued for infringement by HP and then by BMC, with the suits settled for a combined total of $270 million in late 2016. Since then the company has initiated a patent-acquisition programme, acquiring 600 assets. It is also now in possession of approximately 30 issued patents and over 100 published applications, which were developed in-house. ServiceNow has spent $37.9 million on patent acquisitions.

Twitter

Post-IPO Twitter acquired more than 900 patents from IBM, effectively ending a dispute between the two companies. The cost of this amounted to $36 million. The social media giant was looking to fend off IBM as well as other companies seeking licensing fees – after the purchase its shares rose by 1.2%.

Snap

Before its IPO Snap acquired 149 patent families from IBM, as well as five families from Yahoo!. Post-IPO it purchased an additional patent family from Israeli start-up Mobli and US start-up Drop. While the other transactions were undisclosed, we know that Snap spent approximately $17 million on the IBM and Mobli purchases.

Acquired patents account for 80% of Snap's patent portfolio. The assets acquired from IBM cover its core existing products and offer freedom to operate. Its more targeted acquisitions relating to key patents on geotagging can also serve to block its competitors. Although Mobli closed years ago, Snap likely purchased these patents to keep them out of the hands of rivals or an aggressive patent assertion entity.

Since Snap was proactive in its approach it was able to negotiate a cheaper price. Twitter, which also acquired from IBM, did so after its IPO and paid $36 million for 945 assets. Snap paid $9.45 million for 453 assets (245 issued patents and 208 applications), which is about a quarter of the price for half as many patents. While Snap paid much less than Twitter, it is worth noting that the quality of these assets was not assessed.

Pure Storage (2014)

This data storage company acquired over 100 storage and related patents from IBM as a defensive strategy. It also acquired a number of other patents to bolster its position. Pure Storage's stock rose by 8.4% after these acquisitions.

These studies show us that it can be much more expensive to acquire patents during or after a lawsuit rather than through self-initiated acquisitions.

built out organically or through acquisitions. The latter is a relatively recent practice and can significantly boost the value of a company's holdings.

"When you have nothing you are looking at what are the key technological areas. First you look at market conditions and what is being litigated in the market. Then you look at what is on the horizon. What are the key technologies that will drive the future?"
Kurt Brasch, Uber

"Purchasing campaigns were not an option 10 years ago because there wasn't a big enough market," argues Richardson. "While more advanced companies may have been using this strategy 10 years ago, unicorns were much more focused on growing their business. Going further back to about 15 years ago buying was a rare strategy. Intellectual Ventures (IV) was the reason why this practice has taken off, as IV built the patent market to the point where the market could operate independently."

Purchasing patents not only helps a company to grow its portfolio but is an opportunity for businesses to disproportionately increase the value of their holdings in a short period of time. According to Richardson, the average portfolio is not weighted evenly, with a small part being much more valuable than the rest. When acquiring assets, companies can exclusively target high-value patents and can also purchase assets that they may never have been able to invent themselves. "We highly recommend to unicorns that the first purchases are in technology areas that directly relate to the business and then diversify out to the areas that are more interesting to corporate asserters and potentially less interesting from the licensing point of view to the unicorn itself," says Richardson.

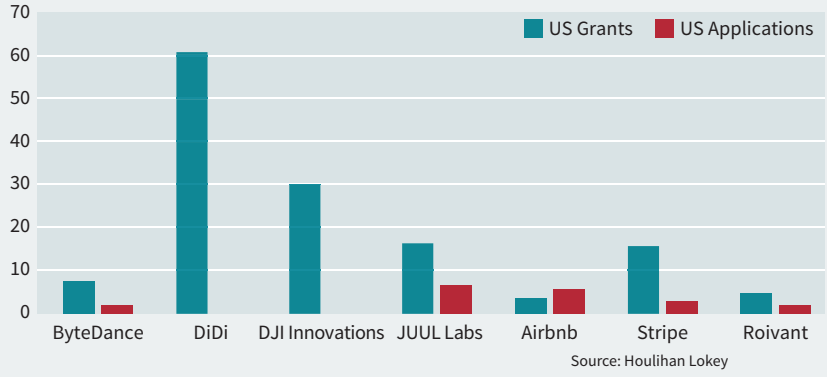
The question is, how do companies select what assets to buy? This was an issue that was confronted by Kurt Brasch, a former Motorola and Google IP executive, who was hired by Uber in 2016 to build up its patent portfolio.

Brasch undertook a buy campaign leading up to the company's recent IPO. While he acknowledges that other tech companies had run into issues going public because they were not prepared from an IP standpoint, the exit of the company was only a secondary consideration for Brasch and his team. "The first and primary goal was long-term in nature," he maintains. "It was getting the portfolio prepared to protect the business down the road."

What are today's unicorns up to in terms of acquisitions?

A number of the unicorns analysed in this article have been proactive in building out their portfolios through acquisitions according to research conducted by Houlihan Lokey.

FIGURE 4. Unicorn IP transactions



Source: Houlihan Lokey

DiDi and DJI Innovations have done the most shopping around. The former has purchased the most from France Brevets (27) and MiTAC Holdings Corporation (29), carried out in 2018 and 2016 respectively. It also obtained five assets from Hewlett Packard. DJI Innovations made one purchase from Microsoft in 2018.

Roivant Sciences and Stripe each carried out one transaction. Roivant bought patents from Karos Pharmaceuticals (2017) and Stripe from Google (2018).

ByteDance and Airbnb have the highest number of individual transactions (see Table 3).

TABLE 3. IP transactions for ByteDance and Airbnb

ByteDance IP transactions

Execution date	Seller	Number of disclosed US assets (US grants/US applications)
19 April 2019	Qijian Software (Beijing) Co, Ltd	0/1
8 April 2019	JukeDeck Ltd	1/0
20 January 2019	Smartisan Digital Co, Ltd	7/7
22 August 2017	Tank Exchange, Inc	0/1

Airbnb IP transactions

Execution date	Seller	Number of disclosed US assets (US grants/US applications)
25 January 2018	Trooley Inc	2/2
7 September 2017	Klink Technologies, Inc	1/0
21 February 2017	Tilt.com, Inc	0/1
9 December 2016	Localmind, Corp	1/1
24 January 2014	Localmind, Corp	0/2

Source:Houlihan Lokey

Uber had the option to exclusively pursue organic growth for its portfolio but that would have been time-consuming and would have left a gap in the portfolio. Since the company had the capital available, Uber's patent team was given the opportunity to identify areas that needed more protection.

"When you have nothing you are looking at what are the key technological areas," Brasch opines. "First you look at market conditions and what is being litigated in the market. Then you look at what is on the horizon. What are the key technologies that will drive the future? Those are areas you will want to address."

"It can be hard to find – especially if you're really innovating," he concedes. "The odds are there are not a lot of patents to buy and in this situation you would build organically. That's what we did for autonomous because there was not a lot of good stuff available. Whereas with broad software and mapping we looked around for support. AT&T had some fundamental ride-share patents that predated our existence by five years."

Brasch and his team analysed data to identify portfolio gaps and patent thickets. This gave them an idea of what to focus on and whether they should strategise for a counter-offensive (ie, sue back if they were accused of infringement by an operating company) or a purely defensive approach. "Sometimes you have to buy patents defensively, other times you are stockpiling in the event that you are attacked," Brasch explains.

His advice for businesses looking to expand their holdings is simple: "Building a patent portfolio is a long-term focused strategy. You won't see the value immediately, in fact you will see short-term cost, but in the long run you are better protected."

SMEs and start-ups within highly technical fields understand that they cannot get away with avoiding patent protection and when the funds are available many seek counsel to ensure that basic portfolio building is completed. Yet it appears that many see patents as one part of the lifecycle of the business rather than part of its overall long-term strategy. The lack of awareness of how patents play into future success could ultimately damage the prospects of the business and effect its longevity through expensive litigation or late-in-the-day buy campaigns. iam

Action plan

A high percentage of unicorns lack any patent protection and this is reflected more broadly among SMEs worldwide. While start-ups are seemingly more aware of the value of obtaining patent protection, more must be done to educate them against the potential risks that they face, especially when they reach a high-growth phase.

- Businesses must have a conversation about intellectual property right from the beginning of their lives, even if it is a choice to put off protections in order to prioritise other objectives.
- The value of patents must be communicated effectively to business owners, why it is necessary to obtain protection early on and what the financial risks are of not doing so.
- SMEs especially need to be aware of IP-related risks when their revenues start growing and they have established a distinct presence in the market.
- Patent data can be an effective tool for companies looking to understand their rivals' strategies as well as to get insight into the greatest technological area risks in the market.

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