

Coming into focus

In today's challenging economic climate, cash-strapped companies must increase their competitiveness using fewer resources. Shrewd innovation management strategies can optimise the R&D effort – and IP functions have a crucial role to play in this regard

By **Jack Ellis**

While it might be easy to suggest that the best R&D is always demand driven, the late tech guru Steve Jobs would challenge this assumption. When asked to share his insights on product development, the inspiration behind some of the 21st century's most coveted products bluntly outlined the fallacy of a market-led approach. "You can't just ask customers what they want and then try to give that to them," he warned. "By the time you get it built, they'll want something new."

Under Jobs's guidance, Apple became – and remains today – the epitome of an innovation leader. Each time Apple announces a new product, consumers expect much more than something that simply meets their needs. They expect to be delighted by technological marvels the likes of which they had barely even imagined. It is this promise that has kept the resurgent Apple at the top of the market and won it a fanatically loyal following around the globe.

Jobs also observed that "innovation distinguishes between a leader and a follower". More than ever before, innovation is seen as central to competitiveness and differentiation in the marketplace. However, giving R&D functions free rein to innovate will eat up precious time and

capital, and cannot be guaranteed to result in technologies that consumers will value. As an increasing number of businesses are discovering, a forward-looking innovation strategy – carefully managed by the right team – can give inventors direction and focus resources on the business's long-term aims and objectives.

Bruce Story is a senior adviser at ipCapital Group and was formerly senior director of intellectual capital management with The Dow Chemical Company. Speaking from experience, he believes that it is paramount for IP professionals to take a leading role in innovation management if businesses are to maximise their return on investment in R&D. "Innovation and IP go hand in hand, because if you really want to get the value out of innovation, it needs to be protected with IP," he says. "But going beyond protection, companies need to strategise over how they will fit this innovation and the IP generated from it into their overall business plan."

For Story, innovation that is truly aligned with commercial objectives must be managed by a multi-functional, cross-department team. "Ideally the legal, product development, marketing and even sales functions ought to be involved in a management team at an early stage in all innovative projects," he suggests. "This enables a faster commercialisation of any resulting invention." To this end, Story suggests that impetus needs to come from as broad a cross-section of the organisation as possible. "Innovation should not be buried in an R&D department," he warns. "Otherwise, how can anyone know if it really is responsive to customer needs?"

Brad Goldense, CEO of product strategy consultancy Goldense Group, agrees that innovation must be understood in a holistic context, rather than as something that is

confined to a laboratory. “Ultimately, the success of an innovation is measured by its performance in the marketplace,” he says. “It takes more than the expertise of any one corporate function for it to get there.”

Goldense argues that the in-house IP group should participate more actively in technology development projects. “The innovation process starts with an initial concept, followed by definition, pitching the business case, design, development and product launch,” he says. “Typically, IP is only really involved somewhere towards the back end of that process. But it needs to have much more input in the front half. That would allow the company to make much better use of its resources.”

Traditionally, it has largely been left up to R&D functions to direct the early phases of innovation towards those technologies predicted to be critical to the business’s future, with the IP team taking a back seat in the process. “Historically, R&D groups have been the ones to try to look ahead and figure out which new technologies could lead to products for their companies,” says Suzanne Harrison, principal at IP strategy consultancy Percipience. “They go about organic innovation and when they think they have a new and patentable idea, they throw it over the fence to the IP department.”

But by involving the IP function more closely in planning and executing a progressive technology strategy, companies can fine-tune innovation and stay ahead of the curve. “Think about the mobile phone, for example, and how that has changed in the past two decades,” says Harrison. “Ten years from now, people may not even want a device in their hand! Businesses need to figure out what products consumers will want 10 years from now and what technologies they need to have in place to make that happen. For these complex products, which read on hundreds of different patents, it is impossible for a single company to own them all. So they need to understand what they own, what they can invent, what other companies are likely to invent and how they can start forming relationships with them now, so that they can access the IP when they need it and don’t find themselves locked out.”

Getting involved

For a start, companies need to be mindful of the competitive landscape in which they operate and ensure that new innovations which may eventually be assimilated into new products or services do not infringe third-party intellectual property. “For businesses whose products generally

feature one, or very few, patents – such as pharmaceutical or chemical engineering companies – this makes prior art searches a lot simpler and allows companies to be more confident that their invention can be put out to market with a high probability that it is not infringing on someone else’s IP,” says Harrison.

But in industries where there are multiple patents to a product, it becomes almost impossible to complete a product clearance process on a concept. “In this case, the patent attorney’s job is to make that idea as broad as possible,” says Harrison. “Where you can’t clear a product, you’re just pushing the envelope and hoping that by doing that, you can protect as much as you can.”

Typically, the responsibility of the IP function in carrying out these legal checks and balances has been seen as secondary to the inventive process itself. However, Harrison stresses that involving the IP function in innovation at a much earlier stage can bring handsome benefits. “In both patent-light and patent-heavy industries, IP teams can help with design-around processes,” she says. “And since they have a good idea of what IP is already out there and is likely to be there in the future, they can lock up areas of white space and create a path for the company’s chosen technology futures.”

Particularly in the case of high-tech products that incorporate myriad patented technologies – such as smartphones and medical devices – early input from the IP group can help to focus the business on investing resources in those emerging technologies that will most likely feature in upcoming product offerings. “In addition to the organic innovation coming out of the R&D department, companies in such industries need to think about what technologies can be acquired from external sources,” says Harrison. “From a patenting point of view, they also need to think about what they can create before actually doing any bench science.”

Essential IP

For one of 3M’s most iconic creations – the Post-It Note – adhesive technology, colloid science and a variety of different manufacturing methods come into play, demonstrating that any number of protected inventions can contribute to what, on the face of it, seems a rather simple product.

Essential technologies with applications across 3M’s huge product range are developed in its central corporate research laboratory. Further product-specific



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innovation which builds upon these fundamentals takes place in the various business unit laboratories.

This necessitates a nimble IP function that is active at all stages of the innovation cycle and throughout the different business units. “Our team gets involved pretty quickly after an idea tends to form, and before we are thinking about how that idea might be developed and be applied,” says Kevin Rhodes, chief intellectual property counsel at 3M. “We are involved primarily from two perspectives – both from how we can best protect that idea, and also to ensure that the business has freedom to operate in a given direction if that idea manifests itself into a business opportunity.”

To achieve the requisite level of integration, 3M’s IP group has individuals embedded in the R&D function of each business unit, in addition to the core team based in the legal department. “We have a team made up of attorneys and patent agents that extends into the labs,” explains Rhodes. “But we also have our IP liaisons, who interface between the lab function and the legal function. Typically, they are located within the labs and are literally at the lab bench if needs be, helping the researcher to understand what steps need to be taken to protect an invention quickly and diligently.”

The advent of the America Invents Act, which shifts the US patent regime

from a first-to-invent to a first-to-file system, has increased the importance of having IP expertise in the laboratory. While the liaison role has existed for some time at 3M, the IP department has taken steps to further integrate themselves with the innovative functions in light of the legislative reform. “Having that outreach from our legal function into the lab is all the more important with America Invents,” says Rhodes. “It allows us to implement a culture of thinking where our researchers understand that we need to be prompt and productive in protecting our inventions.”

Free will and determinism

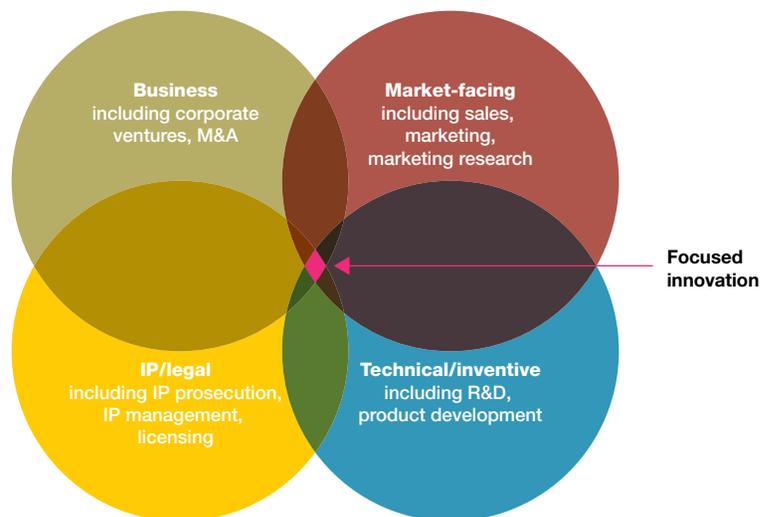
Although it is crucial for the IP team to secure protection at an early stage, it is important that such considerations do not stifle technology development. Too much oversight from the IP department could lead to missed opportunities, so it is imperative that a balance is reached. At 3M, inventors are allowed to set aside 15% of their working hours to engage in free thinking outside of the parameters expressly defined by the company’s innovation strategy. “Some of our most famous inventions – including Scotch Tape, Scotchgard and Post-It Notes – came out of that programme,” Rhodes continues. “If that 15% of free time results in someone coming up with the next Post-It Note, then they need rapid support from the IP function to make sure that they can maximise the potential of that idea. Otherwise, there is the risk that the idea is not fully protected and it will lose value.”

As well as protecting the fruits of R&D as quickly and effectively as possible, the IP team’s knowledge of the competitive landscape can also help to streamline the innovation process itself by ensuring that resources are channelled towards projects which are central to the business’s technology objectives. “You can be generating a whole pot of ideas, but there needs to be some guidance so that fits in with where we think the opportunities are, where we think our main competencies lie and where we think there is potential for genuine competitive advantage. So there is a culture of discipline at 3M where our researchers focus on those aspects.”

At AT&T, too, employees are encouraged to let their creative juices flow. Ideas and inventions from across the company are submitted to one of two teams within the IP department, depending on the projected timeframes for their potential integration into the company’s business plans.

The innovation pipeline team, headed

Optimum innovation management



Intellectual property, corporate and business development, R&D and sales and marketing functions should all be involved in an integrated management team if optimum value is to be realised from innovation

up by executive director of innovation Sam Zellner, handles near-term innovations. These often include minor but potentially high-impact improvements to products or business processes, or more complex inventions that would be best implemented in the company's product and service offering as soon as possible to gain competitive advantage. Many such ideas are crowdsourced from – and peer reviewed by – employees via the AT&T intranet. “We get ideas from throughout the whole company, from the researchers at AT&T Labs to the sales reps,” says Zellner. “Some ideas are very well developed, while some are scribbled on the back of a napkin. We might be delivered an idea that is new to AT&T, but is perhaps nothing new to other companies and other industries. In those cases, the idea is unlikely to be something that is patentable.”

But for innovations that are new not only to AT&T, but also to the wider world, Zellner's team can partner with a second group, led by assistant vice president for patent development Bob Koch. Koch's patent development team considers inventions which could have longer-term strategic applications and are therefore more suitable for patenting.

The two groups work closely together to make sure that the short, mid and long-term possibilities of all ideas they receive between them are carefully explored. “Sam and I are customers of each other, in a sense, because Sam's team can have near-term innovations that have longer-term patentable implications,” says Koch. Conversely, some submissions received by Koch's patent development team may be directed to Zellner's innovation pipeline team to advance the deployment of innovation to AT&T's customers sooner. “At the same time, there may be innovations in the patent portfolio that our inventors worked on years ago, but have now ripened and now present an opportunity for us to leverage them,” adds Zellner.

As Koch explains, the responsibilities of the patenting function go far beyond managing submitted concepts and working with attorneys to file patent applications. “Our job in patent development is to help inventors to envision the future of their ideas, well beyond the day-to-day headlights of their job,” he says. “Since patents have a 20-year lifetime, we strive to make them visionary and relevant for many years. That's where the IP team can really be facilitators of innovation – by getting our inventors to think broader and bigger than their original idea, beyond the scope



Bob Koch, assistant vice president of patent development, AT&T

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of near-term incremental innovation.” As well as helping colleagues in R&D to make stronger patent filings, the IP team can also improve their strategic awareness. “Beyond their project, what other applications might their idea have? What would a future version of their idea look like? By helping inventors think about future potential for patentability considerations and technology trends, we in turn advance the rate at which AT&T is introducing innovation to our customers today,” Koch explains. “Our job is not only to protect and facilitate innovation, but also to define the space that we are inventing in. The innovation may even relate to an area that AT&T is not actively operating in today, but may be in the future.”

Seeing the bigger picture

However, predicting which concepts may or may not have future business value at the very outset of the innovative process is no simple task. “They might be great, novel ideas, but in the end they might be something that consumers would never be prepared to pay for, or something that is given away for free,” says Zellner. “Novelty by itself isn't sufficient justification for the company to invest in an idea.”

At 3M, too, the IP group assumes significant responsibilities in discerning which areas of technological research are likely to be most conducive to the company's long-term business goals. “At the initial stage of innovation, it is very difficult to determine with a great degree of precision which of those ideas is going to be a



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Branded innovation

Innovation is not just something that companies need to do to remain competitive. It is also something that modern consumers value and consider when making purchasing decisions. “We are living in an age in which consumers are attracted to the best of the best,” says Brad Goldense, CEO at Goldense Group. “After the last two to three decades of very rapid technological evolution, people no longer want to buy just any old product – they want to buy the one that has the most abilities, is the most intuitive to use and is the most aesthetically pleasing. So, if you can get consumers and the rest of industry to recognise your company as an innovator, people will want to buy products from your company and they will be willing to pay more for them.”

A corporate reputation for innovation is therefore a powerful branding tool. “Innovation is absolutely the key attribute that we are looking to market to our consumers,” says Kevin Rhodes, chief IP counsel at 3M. “We see it as the common denominator for all of our brands, and we are always striving to bring technology to our customers that provides them with advantages they cannot get elsewhere and therefore differentiates our products from those of our competitors.”

This means that the IP department has a responsibility to ensure that the innovation which those consumers are willing to pay for is not infringed upon. A lower-quality imitation or knock-off might not meet the brand promise that 3M customers expect –

and that would reflect badly on 3M. “At the most basic level, we have to make sure that we have done the best possible job we can as an IP function to protect inventions that result from our investment in R&D,” says Rhodes. “When that invention becomes embodied in a product, we have to do everything we can to protect those points of differentiation that are important to our customers. This will lead them to conclude that the value proposition favours buying the 3M product, and does not allow competitors to unfairly free-ride on the investments we have made in innovation.”

success,” says Rhodes. “Therefore, we try to file for IP protection very aggressively and very widely as early as we can.” However, Rhodes stresses that many of these ideas will never amount to anything in terms of technologies that could one day feature in 3M products. Left unchecked, such an approach to patenting could result in a bloated portfolio that becomes too costly to maintain and increasingly disconnected from the company’s overall business strategy. “If you are going to file aggressively initially, you have to be extremely ruthless about trimming the portfolio when it becomes apparent that there is no longer a business interest in those applications,” Rhodes continues. “At 3M, we call this strategy ‘aggressive in, aggressive out’. When a point is reached at which substantial costs need to be incurred to continue to protect those ideas, we need to take a hard look at the technical merits, the legal merits and the business merits as they develop over

Bruce Story, senior adviser at ipCapital Group, suggests that brand strategy and innovation projections need to be closely integrated. He gives the example of Gillette’s launch of its Fusion razor. “What was so exciting about that story was that Gillette had its marketing ready to go as soon as its patent applications published,” he explains. “So as the world became aware of the new technology based on those applications going public, Gillette launched its advertising campaign about this new innovative technology it was offering to the marketplace.” For Story, this underlines the competitive advantage that can be exploited if multiple corporate teams – including, crucially, those responsible for patents and trademarks – are involved in the product development process, from initial innovation right through to launch.

time. It is a constant process of refreshing and realigning the portfolio with where the business is headed, and getting rid of IP that no longer appears to be aligned with that direction.”

While this process can shine a light onto areas of R&D that may prove central to the company’s product offerings five or 10 years down the line, it also affords an opportunity to envisage the competitive landscape of the future.

Patent options

Some inventions may possess latent value beyond that which can be realised through commercialising them as products or services. Even for ideas which do not feature in the company’s product strategy, any intellectual property that has been sought on them could potentially be monetised. Again, in-house IP departments can step in to the innovative process to determine which inventions may present opportunities for sale or licensing. “There may be ideas that 3M decides not to pursue in terms of product development,” says Rhodes. “The vast majority of those ideas have no commercial potential, so there is no sense in keeping them. But it is our job to take a look at that universe of unwanted innovations and try to work out whether there are any gems in there that are of interest to other parties, and protect those even though the 3M interest with regard to commercialisation is not there.”

But the answer, warns Rhodes, is by no means as simple as protecting anything with a hint of monetisation potential: “That’s the recipe to blow your IP budget and end up with a portfolio completely misaligned from where it needs to be.”

Harrison thinks that companies should regard inventions – as protected by patents – as akin to financial options. “It’s the role of the businessperson to get the most value from their assets that they can,” she explains. “A patent is an option on a potential value stream. So the more and better options you have, the more the probability of tapping a value stream. Patents can be seen as revenue generators, but they can also be seen as a hedging option for trading and bartering with competitors.”

Harrison admits that this kind of thinking is quite far removed from the day-to-day concerns of an engineer or scientist working in an R&D department. The IP team, however, is uniquely placed to assume ownership of innovation that does not have a future in the company’s product strategy, but can still contribute to overall business objectives

