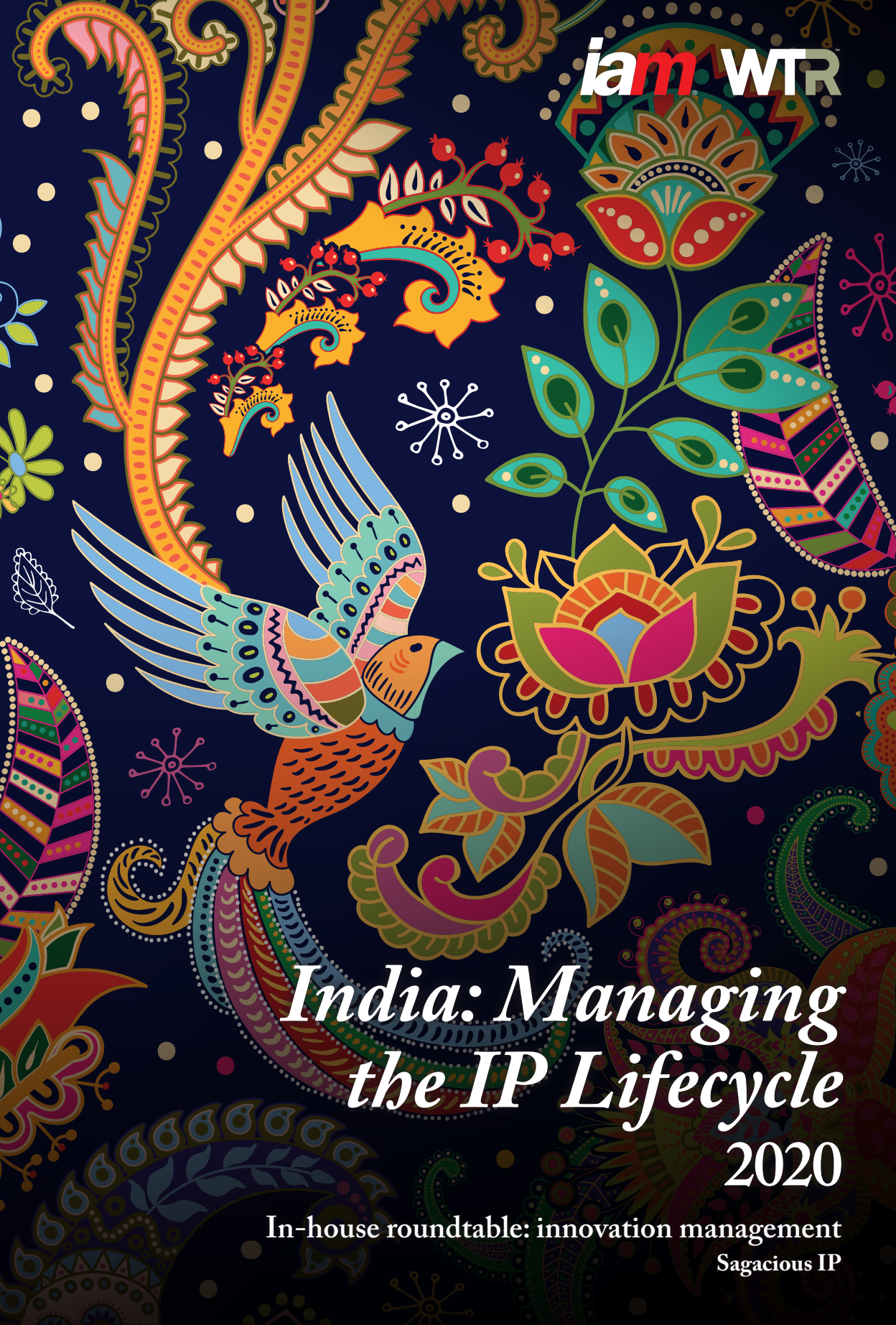

India: Managing the IP Lifecycle 2020

In-house roundtable: innovation management

Sagacious IP

In-house roundtable: innovation management

On the sidelines of IPBC India 2019 in Bengaluru, IAM *and Sagacious IP brought together senior innovation executives from companies around the world to discuss the Indian market. In an hour-long discussion, they tackled issues including problem identification and turning patents into products.*

India is one of the world's great R&D hubs, and Bengaluru may well be the country's innovation capital. Bengaluru is where you go when you want to hear how some of the world's biggest companies generate the new ideas that power their business – which is exactly what *IAM* did with its IPBC India 2019 conference.

Along with partners Sagacious IP (represented by Vaibhav Henry), *IAM* convened a roundtable of experienced IP executives from top international companies – Gyanveer Singh from Tivo; Ajay Joshi from Cummins; Nilesh Puntambekar from Emerson Electric; Senthil Kumar S from ABB; Lakshminarayanan R from Samsung Electronics; Balwant Rawat from Daimler; and Alexander van Eeuwijk from Signify. Together the group discussed innovation management – a broad topic which addresses how IP professionals can help to capture the best ideas within their organisations, secure appropriate IP protection and implement those ideas in new or improved products or services.

Significant challenges arise throughout the innovation lifecycle, but when we brought a group of top managers together they all agreed that some of the toughest issues are concentrated at the beginning and the end of the process. The first issue is identifying the problems to be solved in order to guide the research process in the most productive direction. The second issue, which arises at the end of the cycle, is translating innovative ideas into profitable products and services.

Is one way of thinking about innovation management to divide it into a few stages like ideation, innovation and application?

Balwant Rawat (BR): In my experience, the ideas and IP side of things are the simplest part. The real challenges lie both before and after these three stages.

Nilesh Puntambekar (NP): I second that. There are many things that need to be done. As in-house counsel we know that these are the areas where we interact with an IP service provider, but there are additional areas that we must manage in-house that come before and after the ones you mentioned and which are more critical because they are not well defined.

BR: Just to clarify, I would divide it into five stages: the first stage is identifying the problem – are we solving the right problem? That's where there's a challenge, because if you select the wrong problem, it has a lot of repercussions and ultimately does not really succeed.

Lakshminarayanan R (LR): Is that a technical problem or an innovation problem?

BR: It could be a technical problem, it could be a business problem, it could be anything, because innovation is not just technical. So that's the first part. The second part would be 'ideation' – idea generation. The third part is converting ideas into inventions – how do you add some meat to the bones so that you are able to protect that idea and the variations of the idea? Once those inventions are in place, the fourth stage that I see is proof of concept or prototyping, which gives an indication as to whether

The full roundtable. From left, clockwise: Gyanveer Singh of Tivo, Jacob Schindler of *IAM*, Alexander van Eeuwijk of Signify, Balwant Rawat of Daimler India, Lakshminarayanan R of Samsung Electronics, Senthil Kumar of ABB, Vaibhav Henry of Sagacious IP, Nilesh Puntambekar of Emerson Electric and Ajay Joshi of Cummins

it's getting commercialised and gaining buy-in. The final stage is implementation. Until the idea reaches that stage, you cannot call it innovation. At each of these stages, the in-house IP team has a critical role, although they may not realise it. However, I see them contributing so that the engineering team and the business teams are successful.

Starting with the first stage then, what are the key challenges in problem identification?

NP: The first thing is creating an open culture where people can express their thoughts and ideas. Just creating an in-house portal where people can submit ideas does not work. There must be a good culture where people trust that they can submit an idea, that someone will look at it and it will be seriously considered. It cannot be just an idea that no one looks at. Getting that kind of trust in the IP and innovation team is important. Once we open up any form of idea submission, it's like opening the floodgates – hundreds of ideas come, of which very few may be relevant. But to build a system where all ideas are accepted and good ones are identified, a lot of effort is required and systems need to be built up. Otherwise, when we start, we might aim not to collect so many ideas because many will not be good enough. And then the next time, nobody will submit any ideas. This is more of a people process. Aside from technology valuation it is more about connecting with people, building trust and culture on both sides, between the IP side and the inventors. Giving people positive feedback on whether their idea is going to work without hurting their feelings is key – you don't kill off an idea straight out. It's not a one-day exercise, it takes a long time. This is basically what is required to start a robust IP process in any organisation. Once that's in place, people start submitting ideas. Quality comes later. First, it's building the trust – that is one of the biggest challenges.

Vaibhav Henry (VH): As external service providers, this is something that we want to involve ourselves in. We try to have classroom training sessions. You create a platform where people can submit ideas and you get a multitude of submissions. The best way to channel it is to put a couple of people together in a group, presenting the same set of ideas, and then they can sit with the inventors and tell them why or why not, given prior art, something is patentable. That's something we think should happen with inventors. So now the problem is whether the IP teams have the bandwidth to assign people to each of the technology groups. If you look at the exemplary R&D innovation ecosystem [see Figure 1], there's an R&D box and there are tech verticals. What we tried to do is map IP teams so that in each of the tech verticals we keep training to improve the quality of those ideas and convert more of them into disclosures. That's the first step: training and some kind of classroom coaching. But we have found that the IP teams are small, and it's hard to map enough people to educate the inventors.

NP: That's correct. It's vital to be open minded to submitting ideas, then all these systems come into place. Just building infrastructure may not work. It is a very human process.

VH: What should be a robust practice, if you open a platform to people and they submit a lot of ideas, but at the same time they're not very well educated about the patenting structure? Or if, from their perspective, they don't think the company has trust in them and their ideas will actually be considered?

Gyanveer Singh (GS): In large organisations the IP process is not very visible to all employees. Some employees will be aware of IP or patent processes, while the majority of employees won't know how their ideas are screened and reviewed. So I would emphasise the need for an IP awareness programme in the initial phases. At TiVo, we conduct an IP awareness session on the day of induction. Being relatively a small company in terms of the number of people here in Bengaluru, with a little over 400 employees, it is practical for us to do the basic IP awareness session on the day of induction, but I'm not sure how practical that would be for others. It goes a long way towards creating the culture of innovation. If all the incoming employees have gone through the IP awareness session, they will know where they need to go to submit an idea and who the right person is that they can approach. It's good to let them know that their ideas aren't junk, that we value even the most simple ideas – take a toothpick as an example of a basic idea that has its own value. We also try to offer a sample of the perspective regarding what we expect in terms of innovation and the problem-solution approach of presenting the idea. Often you get a high-level abstract idea from which you can derive nothing. We're expecting four or five lines to start the thought process. Most people do not know what should be in the disclosure. So, as a patent team representative, we may have to interact with inventors. Tell them what we're expecting from them, and which areas are interesting. We should be very open, looking beyond merely technical ideas – I have seen people from HR, finance and other non-technical functions who have also contributed actively, and we have been able to convert their ideas into good patents.

FIGURE 1. Innovation ecosystem

BR: We've seen that problems come from three main sources. The first is from the customer, internal or external, saying 'I want this'. The second comes from introspection, wanting to reduce waste and process inefficiencies. The third is bringing that technology outside. Most of the time we are so focused on solutions that it becomes like big data, and the moment you dump these 100 or 1,000 patents on engineering teams, they get confused. One thing would be to make them aware only of the problems, as for one problem there could be 100 solutions. So, rather than giving them 100 patents, it's better to simply classify it in terms of the five or so problems that they are solving. The problem is unique, and we know that breakthrough innovations happen when you solve a new problem. So that's a fantastic way of making people aware and asking whether we are solving the right problem, because outside there are so many distractions. Going back to the three sources that I mentioned, one was customers. Because the IP team is extremely busy with its regular timelines and because it's limited in size, as a machine it is performing its daily tasks, but the team must improve its understanding of the company – that is where it should invest more time.

Ajay Joshi (AJ): I think there is a further issue at the problem identification stage. Engineering teams, when working on their own, often find the solution and then ask the business to implement the idea, only for them to say that they will not solve this problem because the market may have changed in the next two years and development time would take many years. Being a big company with a centralised R&D and IP team, when the disclosure form is being filed we ask which problem is being solved, so we can confirm with stakeholders.

BR: If you look at all the innovation activities where the first step is design thinking, you will find that IP professionals are not really taught such things. But if they can understand it, they can relate better to the inventor and see whether the right problem is being solved. In our team we see that if you believe that the problem is not really right, you can stop the idea there with no need to continue further.

Alexander van Eeuwijk: I agree, but if you go back to basics, we're talking about intellectual property. 'Intellectual' means that it comes from the brain, something which is created by a person. I would say that the personal aspect is the most important aspect in innovation management. It is not just about the invention; it is about how people interact. People should not be scared to submit an idea and should be embraced when they do so. It's all about how people communicate and work together, that's the most important thing: focus on the interpersonal aspects. It's vital to realise that technical people think differently from patent attorneys. You may all have taken that transition in your life –I started out in engineering and it was only later on that I became involved in law. As an engineer I was trained to find solutions, where the only thing that was important was the result of a calculation. A legally trained person thinks differently. A legally trained person says, 'it depends'. It's not about the result, but about arguing why that is the result. Often, when talking with inventors, you'll find that inventors come up with inventions which they treat like their baby. As an attorney you have to explain that something is not new. It is extremely important to understand how people think – that's how you stimulate innovation and are innovative as a company.

LR: That's a good point Alex. I think we usually articulate all these together: employee engagement, changing the mindset, changing the culture and the way you approach problem identification. India is a developing country. In many areas we are 10 to 15 years behind developed nations; therefore, we often come up with ideas that are simply not novel. So, if we are to have a winning solution, we must exceed the developed countries. That's where we propose looking at the future problems and coming up with believable solutions. That's sufficient for a patent. If you look at an older problem, or a current problem, and solve certain things, you'll end up facing difficulty when patenting the solutions. That's the message we give. In addition, we are a global company – we do not look at problems from an Indian angle only. What is a problem for us may not be problem elsewhere. People have created gloves, for example, that don't work in cold countries like Russia. We always emphasise the fact that we create products for different geographies, different age groups, different genders and people of different abilities. Look about the 360 degrees of the potential problem.

Senthil Kumar S: I see good number of inventions that tend to come from R&D programmes. Such programmes have objectives that can define the problem, which can of course become clearer as we proceed. The concept of intellectual property relates to protecting R&D investment. If we end up developing something new, that would give us a competitive edge – it's important that we're able to protect that effort. There are some invention disclosures which come from outside R&D programmes, and that's fine. But, number-wise, these kinds of invention disclosure are usually few. But why? It takes time for a person to engage with a particular technology and to invent. It's important to learn the technology and adapt that technology to create a new product or feature. How do we learn? Perhaps the first stage of learning is copying. I want to understand how to do a particular thing, for example, how to make a simple electronic circuit. In school or college, we are taught to take the textbook and to do exactly what is there. Then we start practising what we are learning. At some point, with this kind of practice, there is the possibility of a little magic: something new happens, you get familiar with much more than the electronic circuit and you begin to understand the design, what's around the design, what's influencing it and where constraints are in relation to the workings of the electronic circuit. Then you can work out how the electronic circuit can be adapted to new demands coming in. Such adaptations to new demands result in innovation – that's how innovations happens. Later, we determine whether it's new. The person has now learned and can apply a technology to solve a problem and to innovate. Of course, if innovation comes into existence in this manner, where something is getting solved, there's a benefit to be had. It can take time for a person to reach this kind of ability. Therefore, a person who wishes to innovate requires a certain kind of background, such as familiarity with technology and how it can be applied. When the invention is

the result, there is a problem being solved and this problem needs to be clearly articulated.

We often experience excitement in a project team when there is something new. Stakeholders are also excited as that something new is acknowledged. But what's the problem that has been solved? That is unclear and can require some effort to recognise and then articulate. Maybe the problem that has been solved must be re-articulated when we find related prior arts. Sometimes the inventors understand this task and help us to articulate the problem. However, sometimes inventors say 'I can tell you everything about how a product or feature works and its utility, but I am unable to say what the different problems are that are being solved'. In some product and business areas, the clear articulation of problems takes time.

VH: I think one underlying issue here is to be able to turn the patents that we are generating into products. What Senthil is talking about is how to conceptualise the feature that is presented by the patent and turn it into a product. There's a difference, because the R&D teams are working directly with the products, and then we give them some patents, even if they can bridge that gap of identifying the right problem, and then categorise all the patents as solving this particular problem are we able to represent them? Is that inventor just thinking about the subjective feel of what problem is being solved, or are they able to apply that situation to a product and uncover what the features in that product will be? The inventor may be able to build that product, solving only the current problem, but when that has been done, that's where the excitement comes in – the learning can be viewed in the tangible terms of the product itself. Otherwise, it's just something to read about. This is an underlying issue as I see it.

NP: This is probably faced by everyone here – in all our engineering teams there will be people with different expertise, different lengths of experience, different depth of knowledge. So, when they approach the same problem, everyone has different thoughts and ideas about that problem depending on how much they know about the subject, how much they know about the problem itself and how much technical expertise they have, plus how inventive that person is. If we give a standard solution as an IP team – 'this was your problem, this was your idea, this is what patent prior art search is' – it may not work for each person in the same way. It's not a one-size fits all. For IP teams in-house engaged in innovation management, understanding how that person will be most creative and come up with the most usable idea is where a lot of effort is required. It is not just 'submit a prior art search report and do it yourself', hand-holding is required.

VH: The exemplary innovation management ecosystem [see Figure 1] helps to define the actors. Maybe we could talk about the problems in the IP or R&D teams, because this problem that we have discussed shows the relationship between the IP team and the R&D team, and how we can bridge the gap between the two. Coming back to Alex's point, it is important to identify the relationships and open up the culture, and to identify what the gaps are that can be filled so that the culture is open and innovative. One issue is identifying the problem in such a way that the transition barrier for an inventor to turn something into a product is low. The inventor gets excited and we reach the core of every person involved. The relationship becomes more strained as we appeal to the inventor's inventive side. These are the solutions, but a good approach might be to select one patent which can be implemented. Implement this thing first to solve the problem, and then see what the other variables are that can be changed in the same environment. This is a kind of enabler for R&D people to do something innovative. I see this as a good way of making a transition through the gap in the understanding of the current solution and what we are doing.

I think we have proven that the concept of problem identification is a huge topic and presents a lot of different challenges to an in-house IP function. Nilesh, you mentioned that the other big set of challenges comes at the end of the innovation management process. Can you explain what those are?

NP: Towards the end of the process, most engineers are satisfied once the patent has been filed. They see the patent filing as the goal, and once that it done it is the company's responsibility to work on the idea and do something with it. In Germany, I've seen that German inventors are so passionate and pursue their ideas beyond patent filing. One of the reasons for this is that the incentive system in Germany links implementation to inventor remuneration. The inventors have a stake. If the idea is implemented by the company, a certain percentage of the money is given to the inventors as an incentive. Some top inventors of

the best ideas have become rich as a result. Once you have an idea, do not stop once there is a patent based on it.

The second thing is to introduce awareness that the goal should be how you bring ideas to completion. In the IP team we have started trying to identify which of these IP rights have been implemented and then once something has been implemented, it has a recognition system. In our company we dedicate one day each year as an innovation day to bring ideas to life, where we showcase the patents which have been implemented into products and have created change. Of course, there may also be other ways to highlight that.

AJ: An example from Cummins is that we have an innovation wall, where the most critical patents are showcased. This has helped Cummins to lead the market in key technologies. Another example is how we have developed our awards. For the highest technical award within Cummins, you are eligible for the award after a certain number of years following the grant of a patent. The winning criteria comprises many factors, such as the commercialisation of that technology. This is where the pride of the technical teams comes from. I think the challenge is there, because sometimes you are satisfied that there is a patent filed in your name, but seldom does the inventor go back and ask whether it has been implemented.

VH: So is it the job of a different team to implement that invention or is it the job of the inventor who came up with it?

AJ: Most of the time, the inventor may have filed an invention disclosure for, say, a product that's going to different markets, so they may not really have that knowledge of whether it was implemented or not.

VH: In Balwant's case, the team was not working on it because they thought they now had a patent, but it was actually implementing it, adding that feature to the product.

AJ: If they are allowed to be a part of the development team, yes, but sometimes it's not practically possible.

GS: What we do as an annual exercise in our IP team is to pick some of the patents that we have in our portfolio which have not been implemented in any products. We give these to the inventor community and, on a specific day, let's say an innovation day, we highlight those patents and ask the engineering community to implement a prototype. This exercise has worked well for us and I've seen it generate a lot of new ideas. When the team starts implementing it, they get a new problem and go from there.

VH: Absolutely, there could be two or three inventions once you start using it – meaning that there are essentially two problems. First, sometimes what you invent you want to use, but you don't know whether it has been implemented throughout the company. The second is that you are satisfied that you have a patent but you do not implement it, and there is no business value as a return on investment.

NP: There is no business value problem if companies will not take the decision to file patents. Most companies have a stage-gate process where you first identify the area, then ideate, develop solutions and products, then it gets handed over to prototyping and production. So the inventor's or the engineer's job ends when he or she has submitted good ideas or has completed the design of the product. Then it goes to the next team to make it actually work and launch it on the market. And often there will be a disconnect.

LR: And if you talk about timelines, if you start from new product development you can expect it to take three to four years.

NP: What happens most of time is that I submit the idea, a patent is filed, it goes to production and it takes three more years to go to market. By that time I've started working on new projects or my next project is finished, so that connectivity is lost, provided that all the inventors are engineers in the organisation.

LR: In the software industry it works differently. In the morning you come up with an idea, by

the afternoon they will show you it working on a mobile phone and in four hours they will write the code – these are brilliant guys. I see these skills in Bangalore: they write excellent code and make it work. Once they show headquarters that it is working, it is immediately sanctioned for commercialisation. The end of patent work for one team could be the beginning for a new team. We publish a wall of patents and provide incentives. Then there are people who take up new challenges, create a feeling that innovation, product commercialisation plus patents has a higher value than anything else, so everybody wants to create patents. There are also cases where good innovators – those that have created and submitted a lot of invention disclosures and who are participating in mobilising the idea that creation holds more patents – become part of a think tank whenever a new technology is begun. Such activity happens in Korea. Every year we make sure that at least a few hundred people are first-time patent creators, and we have received national awards for this. But if they get a patent, they get another job – which is a perennial problem for us. However, as a patent professional, I feel satisfied we have coached so many people.

NP: Innovation is not just a technology and IP issue; there are a lot of human factors involved. It requires dealing with people and their emotions, and understanding their thought processes. We're all doing it knowingly or unknowingly, but that's what finally works in innovation management. We must find where we can plug in various actions, activities and services to help innovators.

BR: An inventor may not have all the skills necessary for the invention to reach the innovation stage. This is where human factors come into play. If you look back at the most successful innovations that we have, the ones we reward on our innovation day, there is one common characteristic that you can see in the winners: they are all good at connecting and good at validating – and you need such connections. It helps to validate the problem – because you have connected with the customers, they feel like they know where to use the idea. This really helps them to win the confidence of the end customer.

LR: In India, there are processes where if an idea is killed, it's killed inside the company very quickly. To avoid this, there are schemes where you can upload an idea into a common-knowledge sharing platform that is directly visible to the vice president. The vice president looks at each idea, selects the right ones and informs the inventor.

BR: Sometimes there is a council set up, so it's not the CEO or the IP team, but a council. That is becoming more popular.

LR: There are different business divisions and every division has a vice president. So depending on which category is selected, the idea goes to that vice president. It means that every idea gets noticed.

VH: Even with crowdsourcing there is a second group to bounce ideas off. If one group always kills off ideas, another group might be more open about it.

NP: If there are really good inventors, they can be given other opportunities. As an innovation management team, our job is to identify the bright minds. Companies always have projects where some very bright people are required. Thus, they can be given a chance and they will get better opportunities to use their talent. This is additional motivation, plus the company gets the optimum use of good talent and the IP team plays a significant role in it. This is not merely incentivising; the company benefits too. ■

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