

**IP Management and Technology Transfer**  
**Prof. Gouri Gargate**  
**Rajiv Gandhi School of Intellectual Property Law**  
**Indian Institute of Technology, Kharagpur**

**Lecture - 20**  
**Capsule Version - I**

[FL].

Student: [FL].

[FL] Library [FL] book [FL]. Have you gone through this book?

Student: Yes, ma'am. I really want to take this book, in fact.

Ok this is very actually [FL] time [FL] book [FL] because.

Student: Yes ma'am. Ma'am, in fact, [FL] doubts [FL] regarding IP management.

[FL] Ok that course related your talking.

Student: Course.

Ok.

Student: [FL] ma'am what is the scope of IP in academia?

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Ok. So, we are now in front of like a very reputed academic institute, right. So, if we see this as an institute actually what happens that when we are talking about intellectual property, if you see the institute like IIT, Kharagpur if I take that example now if we see the overall human resource of this considering the innovation and IP creation. You can just check, 750 plus faculty members are here.

Almost 15000 students are there and then there is a so many kind of lab activities are going on, so much research is going on. And, you can just check that in that we are creating we are continuously in innovation mode right and that we are creating lot of IPA, but many times what is happening we are not capturing that IPA. So, institute like this we should have some system to capture that IPA.

And, definitely we have an online system here and maybe some people may not be aware about they may not be knowing the details how to do that, but that online system is the proper like a process is set up.

And, if somebody wants to do patent filing, there is a kind of full support given by the institute. So, we are lucky that in the institute we have all these facilities, but any institute, any academic institute which is like we can say that a powerhouse of intellectual capital.

They are creating a lot of lot of IP actually and capturing is important. So, it at given point if also if we go into the IIT, Kharagpur probably you can capture almost hundred plus patent that is possible.

So, whether we are taking into consideration that IP and whether we are kind of a taking the protecting it and doing proper further steps, like once you do the protection then you have to kind of go further step like you have to commercialization you have to thought about and commercialization is not in the end actually. It is with the starting of that project.

That point also we have to remember and somewhere in academic institute this this thing is lucky that people think ok I will file the patent then it I will do some development around that and then I will go for commercialization. This never works this never works. So, whenever you are thinking about a IP, we have to think from the zero time.

So, if suppose a student PhD student is here. So, PhD student he should like a when he is doing a literature review at that time, he should do the patent review also. In the patent review he has to plan his project activity. It is a patent PhD is like a five-year project we can say.

Student: Yes.

We have to consider it consider it in this way only and then we have to plan that probability what is the probability whether my research is applied research. If it is applied research what is the possibility offer creating innovations or inventions. If I am creating that interventions or

innovation what is the probability of it will fall in the category of a patent. If not patent what is the other type of IP? Because it is not necessary that patent will take care of every kind of a creation. You have other IPs also whether you have thought about that.

That is very important that thought process is important in the first month when a student joins here for a PhD student that PhD work or research work actually. And, if that planning is done for the next 5 years accordingly, probably we will not miss the any IP otherwise what we have to do – we have to take the submitted thesis like especially IIT, Bombay follows that M tech thesis they.

After submission of thesis, they take that, they review that, from that if there is a possibility of IP, they check that thing and then that particular way we can say the IP is protected.

Right.

Student: Yes.

So, all this process is followed now being academy being leading academic institute we have to plan this activity capture it and protect it. And, immediately when we are starting that creation at that time, we have to think about a technology transfer. So, IP management and technology transfer I will say it goes parallelly.

Student: Ma'am are organizations equipped with an ability to IP manage?

If you talk about organizations, I can categorize it actually whether it is academic institute, whether it is a research institute, whether it is an industry sector organization. In sector specific. Organization if it is there now if I want to divide it then the observation is like this actually when I have done like a primary data I have collected from these institutes.

I have done like if you see the academic institute, I will say that the leading academic institutes if we take that leading academic institutes are I will say that they have a very well

established IP system. But whether it is a expected level I will say no, very clearly I will say no.

Because when I compare the academic institute like the leaders or a top most institutes in the country here and if I compare it with the Stanford, then there is a big gap actually. Then we are like that gap is there and we have to feel the we have to understand we have to learn the processes I will say that one thing is there. If I take a research organization then yes there is also the gap is there. So, we are doing, but still, I will say that level IP management is not happening. Few organizations definitely are very very well we can say.

The IP creation and management creation is there probably I will say commercialization is little bit we can say the question, but still, they are catching up. For example, CSR if you take, the creation that is the creation or generation of IP is fantastic, but commercialization we have to think about it. DRDO is doing fantastic job in the IP creation. So, they these organizations are very well we can say appreciated the importance of IP and they are doing the activities related to IP management.

Now, if we take any industry sector organization what is the scenario in India and if I compare it with the leading institute or leading organizations in the world actually. And, as I have done my research in electrical engineering sector, I can say that in electrical engineering sector if you check that sector only I have studied the top most organizations in the country the IP management system, and I have also studied the IP management system of a topmost like a in the world.

I literally if we see the difference that gap is huge gap is there means like if I give you the number wise only if I give a number then only, we can realize that Indian organizations the leader portfolio only patent portfolio I can say and then you can appreciate that thing the difference 1000, 2000, 3000. If I give the complete kind of this thing that little bit flexibility when I will say that 5000 around that a patent portfolio is there.

But if you see the leaders in the world the portfolio is 60000 plus. So, the number itself is saying that ok I appreciate the gap is like maybe the time period or duration for which that may be some organization may be 100 – 150 years like old.

Some are might be new. So, that we have to appreciate. But still, I will say that at this juncture when we are in a technology war whether we will appreciate whether we have to take care of that particular we can say the difference actually, whether we have to learn from this that these organizations that what are the IP management processes they are following and here we are lacking.

Whether we have to learn that we have to and then when we have done the study actually, I have like studied and I found that when I see IP management as a process and if I divide it into various processes, there are 160 – 170 processes are there in that IP management. In the course if you have gone through we have just disclosed of 15 the major processes we have discussed and 5 stages actually. But, if you go into deep deeper into that 15 major processes, it goes up to 160 or 170 plus processes are there.

Now, what is happening and now, what I have done I have mapped whether that 170 processes are followed by these organizations or not and the observation is like that we are not following we are like a 30 or 40 percent we are following that processes and that is the result that we are like IP management is not that robust in Indian organizations compared to the that particular leaders I will send.

Now, if I give you the leader example IBM is a leader in IP filing means if we see the patent filing of IBM the fact is like that every year IBM files almost 8000 plus patents and it is not only one year IBM is doing. It is a continuously going on for last 10 years. 365 days are there and 8000 plus patents are there. Can you imagine every day how many patents are filed?

So, this is the rate of filing of a IP. So, we can just imagine how strongly the IP system is working for such a creation and we as a country if we see with that the kind of a big or we can

say the IC intellectual capital is there, but the outcome when we see that resident filing that is also not that appreciable, I will say.

Comparatively. So, overall, we have a lot of scope I will say for the improvement and we should not waste our time now for trial and error because already the processes are set. These organizations are learned by their trial and error. Now, we have to just implement that thing. Already we know the what exactly they are doing.

That is much easier for you. So, if we decide today if any organization decide today that yes, I want to implement IP management system of that level because there are again five levels of maturity are there.

Even the leader is not going up to the five level world leader I am talking about.

So, if I if we see the maturity level IP management there is a scale actually.

And, the visionary level is there. The observation is like that the leaders in the world also not reached to the visionary level.

But still they are performing well we can say. So, they are at an integrative level actually and still the performance is a appreciable and we know that what outcome is there actually. So, I can say that scope is there we should kind of implement that processes and we have already shared in this the course the framework, the tools and then the system and I guess that will definitely help to catch up and develop that system in the organization and increase the IP score of the that is possible absolutely.

Student: Yes, and ma'am you mentioned patents and other forms of IP. So, do you think a researcher should be aware of the laws of IP everything?

Actually, what I will suggest [FL] need not to know the details about the law, but at least what are the eight types of IPs and out of eight IPs which are very relevant to me. So,

generally if science and technology student is there, they should know the basics about patent, industrial design, trademark and copyright because these four definitely these four IPs – copyright, trademark, industrial design, patent they are a developing they may not understand it they may not appreciate it, but they are developing it actually.

Because technology if applied research is their patent will come; if they are designing some new kind of gadget or some machine or something industrial design will come into the picture. If they want to give some name for example, I always say that whenever you are creating any machine you give some name to that machine. So, that particular trademark will be there.

And, then the copyright means after doing developing that technology probably you will publish your paper. Obviously, you are doing that because unless until you publish your paper your PhD will not be completed and then you are creating copyright. So, these four types of IPs science and technology student should basic understanding how much like whether I am creating that, how to judge that.

[FL] how to protect it, what is the technical details that institute will take care.

That student need not to worry, faculty need not to worry, but at least that thought should come into the mind [FL] this I am doing whether it is patentable or not whether this is enough I have to consult. Then they should consult it and they have to take the decision that the invention disclosure form they have to give and then institute will take care of that.

That awareness is important. That much knowledge of IP is very important. If any student is a art student, then probably patent is out of question actually.

But industrial design may come because if he is artistic and in packaging and all that thing if he is interested in that kind of a sector, industrial design will come; artistic sculpture and all that thing, copyright is coming to the picture right. So, relevant to your we can say the.



Student: Field.

Studies, field, domain you should know that IP very clearly so that you will not miss that is your creation will be protected and you will create wealth out of that. IP is not just for I have a patent and then you are writing on the in the bio-data, we are not expecting that type of a patent.

You have a patent; you have an industrial design and you are commercializing it and you are developing wealth out of that is something expected. So, I will say that if you know that will be good for you yourself actually. It is not for somebody. Else benefit, it is for your own benefit actually. And, then I guess for that purpose basic level is necessary details probably institute or the sale because nowadays you see every institute have IP cell now.

Means I will say that minister of innovation education that innovation cell they have taken that initiative and they have created that innovation councils and all that thing. Then due to the some ranking systems I that internal quality that departments are there.

Student: Yes.

So, and then in the ranking patent is or the IP is given the importance.

Student: Yes.

Now, because of that academic institutes are now taking care of that some system is there. We should know that where to approach and.

Whether what is the procedure to be followed that they will take care of, but that judging is very important. That much knowledge of IPs I will say mandatory I will not say it is optional subject, I will say it is a mandatory one.

Student: Mandatory.

Even in applied research patent literature.

Student: Yes.

In literature review research papers, no, you do patent review also, mandatory. Because unless until you do that thing because we always say that 70 percent of the information is not disclosed anywhere. And, it is only in the patent. Actually, and therefore, that should be mandatory I will say. So, basic knowledge of IP mandatory, basic knowledge of the literature review patent review mandatory.

These two things if academic institute means like this like if we do, if we have a policy and if we do and no PhD for applied research without patent filing. Probably we need not to worry. If three things we follow our IP generation will be definitely good. We will take that how to do commercialization all that thing that is the next step, we have to first create it. So, if we create that then we will think about the commercialization actually.

Student: Yes ma'am.

Ok. So, that is the case.

Student: Ma'am you were mentioning IP audit in one of your courses. So, ma'am what is the role of IP audit in managing IP?

See.

Student: For an organization and, while I say organization, I mean academic mostly.

Mostly, ok. Now, auditing many times what happened that when we people think about auditing, they think about the financial audit and all that thing, but we are not interested in financial audit we are thinking about IP auditing in a sense whether the IP management related processes are in place and what is the level of performance the two things are very important.

I just told you that one sixty plus processes are there. So, whether that one sixty plus processes I am following first question. If not following how I should implement that is our question. Second is like that ok I have this kind of processes what is the level of performance because again we have that five levels of performances in that also. So, which level we are, right.

So, once we do that auditing of that particular thing that IP auditing of that is a processes and it is performance and if system is robust, what will happen? You will it is will be very smooth creation of IP will be there. You will not get like; I have to create IP; I have to file a patent that will not be the situation. I am finding patent I am like I just filed the industry. That should be the scenario.

If that scenario is there, then it is like a we can think about the good entrepreneurial activity or a that successful commercialization that will possible only when every faculty, every student in the institute will feel I have [FL] I have 5 patents already filed. One when this situation will come like we will say that yes, we are in the right we can say we talk about economy trillion dollar economy, it is possible with this only. If we create IP and commercialize it, that will take care of that thing.

Student: Ma'am about commercializing though, what are the techniques that researcher or a startup person should look into IP commercialization? Ok. So, see it is not a first thing like the impression is like that patent filing is very difficult. I will say that patent filing is not that difficult it is a very simple job. If your research is proper and it is really novel something means your literature review is robust very properly literature review is done definitely you are going to create something which is like a falling into the criteria of patent.

And, then patent filing is not a big job actually, but technology transfer or IP commercial it is really challenging one. It is not that easy job means I should very first place I should clarify that thing. Because what happened when we talk about technology transfer or IP commercialization we as a creator feel, my invention I should get this much kind of a returns – that is our expectation.

But actually when you go into the market for that particular commercialization, the situation may be devastating; devastating in a sense like you first thing no buyer will be there. [FL] like this kind of scenario.

If some buyer will be there for the technology, he may not give the expected kind of amount or whatever you are expecting the evaluation that may not be accepted actually. And, the next is like and why this is happening it is not like a fault of a buyer because bringing that thing which is in a patent form which is like literally raw stage.

To the actual product stage, we say that there are two death valleys are there, literally these are death valleys. Now, why these death valleys are there, why there is no question of why actually this death valleys are there because you are going from that lab scale to then pilot scale and then you are like going to the industrial scale.

And, in that product fails many times actually, and you will not get the efficiency and expected outcome in the final product. And we say that ok these two death valleys are there, you do not have any option. You have to cross that death valleys, then only you will get the that final product. Now, when somebody is buying your patent, he has to invest on that particular data and he is not sure whether he will come out with the final product.

And therefore, obviously, his the his take is also perfect that he has to work on that particular invention so much to bring him to that level investment is there. It is like a dark, you are walking in the dark, you are not knowing within and therefore, I will say that IP commercialization is not that easy. But, is whether it is not possible? That is the thing. No, it is possible. But you have to plan from zero time.

And, then there are like a procedures actually how we should go and how we should do that thing, but I guess this is not required here to share because it will be again the different kind of topic that how because at a micro level you have to plan the that particular activity of a commercialization.

Suddenly after filing patent and that also we go after the publication or sometimes we think about grant and then we think about commercialization, if you go at that stage then there is a very difficult it is very much difficult, I will say.

So, I will just give a tip now that we have to start at a zero level that zero time when we are starting our research at that time, we have to think about the IP commercialization. That is good enough means, but how to do, how what are the steps we have to do that is another actually.

That is a big discussion again, separate discussion. We will digress from our IP then.

Student: Yes ma'am.

Yeah.

Student: You mentioned some the five stages that you developed and the 15 processes.

Student: So, how did you develop those one and secondly, how can someone score their IP?

[FL] ok score their IP and all. So, how I have developed that model or what is the base for that this is like a it is like a literally I have studied the IPM processes of I have already told the leaders actually.

And, I have collected the data primary data, I have understood the processes how it is going on ok and then the other literature means primary data is main important thing because you

will not get anywhere IP related data. An IP management details [FL] you it is very difficult only few we can say the literature is available about that.

So, now, what is happening in that primary data whatever is there using that primary data that model is developed. So, it is like a very I can say that immediately you can apply and you will see the results.

Student: Yes.

So, that is very sure about that model. Now, calculating the score – that is a very primitive model I will say. IP audit framework whatever we have shared actually to calculate the score. That is a very primitive we have already shared that. [FL]. With this IP model also, we can able to calculate the score.

But we have not disclosed it here or we have not shared in the in this particular course because there are kind of we have to disclose or we have to explain instead of disclosing I should say that we have to explain that all sixty, one sixty processes and then you have to that five levels of that processes are there.

And, once you know that five levels of that 160, then we can calculate then you can imagine that how like precise value will come and it comes actually precise value comes and you will easily get where exactly you are standing actually.

Considering the primitive model, I will say that this is good enough for as this this stage where we are standing in considering IP its awareness and management and it is customizable means you can just see the for the copyright few examples are there, you can definitely add into that. You can change it.

For patent we have given some pointers you can change it, but the point is like we have given the credence patent [FL] copyright. So, you can just this is like a qualitatively you are not able to do anything; any means you always we want number.

Student: Yes.

Where we stand.

Student: Yes.

Even our marks like we say that this student is good, but unless until we see the grade we cannot believe on that thing, right.

Student: Yes.

So, we want something in numbers actually. So, in that framework what we have given that we have given you how to calculate that number and you can just say that ok my IP score is this. Now, if you calculate the score of that institute that I can like we have like calculated the score of IIT Delhi, IIT Bombay, IIT Madras, BHU, we have used secondary data. So, obviously, limitation is there.

But, considering that limitation that secondary data we have calculated and then we are realizing that yes, this is the score of this organization. Considering IP, this institute is standing at this level and if you see the overall outcome of that organization and that IP score it goes in a perfect way.

Student: Yes.

And, then you realize that yes this is perfect way to judge yourself considering your innovation I will say. And, then I and this framework is helping actually definitely helping to do that thing. And, anybody can just apply that and take a benefit of that where exactly we are standing. So, I can say that this IP scoring is like a very easy and a model is that framework is customizable.

And, you can customize it and you can use it ok. So, what I can say whatever our discussion because we have to now almost I have to go again actually. So, I have a class. So, I had to move. So, I just whatever we have just discussed if I want to summarize, I can just say that see when we are talking about IP audit framework actually, this is a very basic, but you will get the idea where we are standing.

The second model whatever we have talking that is IP IPA model there you are building up your IPMs and now you have to use that to increase your score. So, how you should do that thing is like that today suppose it is the 1st January or if I want to say the academic year if I want to take 1st June if I consider on 1st June in the 1st month only, you just check out what is your IP score.

As a academic institute or if a research organization is there just according to financial if you are financial year or if you want to go if any industrial organization take a ok April month. So, in that month you just calculate the what is your score IP score. Take the model.

Check which are the processes you are following, whether you are following up to a required level and now wherever you are not doing well just improve this and do not try to make like a 15 processes I will improve, it is not possible

Focus on one process.

At a time suppose first three months I will focus on this. Sometimes you will say that no this whole year I will focus on this one the one process. But you do not have to take the 15 years and all that thing. Because 15 processes I am telling you. So, better is like that parallelly maybe you can take into consideration 5 processes and all year just focus on the 5 processes only.

And, prioritize which process is there and then again what you do in the month of like suppose in academic institute June you have calculated.



Student: Right.

In the end that at the end of academic year maybe in the month of May.

You calculate your score again, you yourself will see that there is a difference. I am very sure about that. So, if you apply it in this way, I will say that we will step by step move into the like developed IP system I will say IP management system and definitely our IP filing will be increased. And, once you have a good IP portfolio.

Number wise quality wise we will improve later we need not to worry. About that, but the first generation is very important.

Student: Yes.

So, we will do that first as a country I will say that as a every academic institute should try that. Because unless until we because lot of IP is created means sometimes I feel so bad that it is going like without protection it is going it is not like use, right. So, if we document even copyright lot of copyright is created, but we are not documenting it.

Student: Yes.

So, documentation is important in case of copyright because protection is like burn convention it is very natural and considering IP we have to be alert for the filing that patent filing actually. These two we can say academically more important the 2 other like industrial design and the trademark, their weightage may be low in the academic institute, but the superintendent and copyright is very very important if I talk about a science and technology.

And, we are like associated with the Indian Institute of Technology, then we have to be very very careful actually.

Student: Yes.

So, I guess we should conclude.

Student: Yes ma' am.

[FL].

Student: Thank you so much ma'am.

Ok.

For clearing all the doubts.

Yes.

Thank you.

Ok.