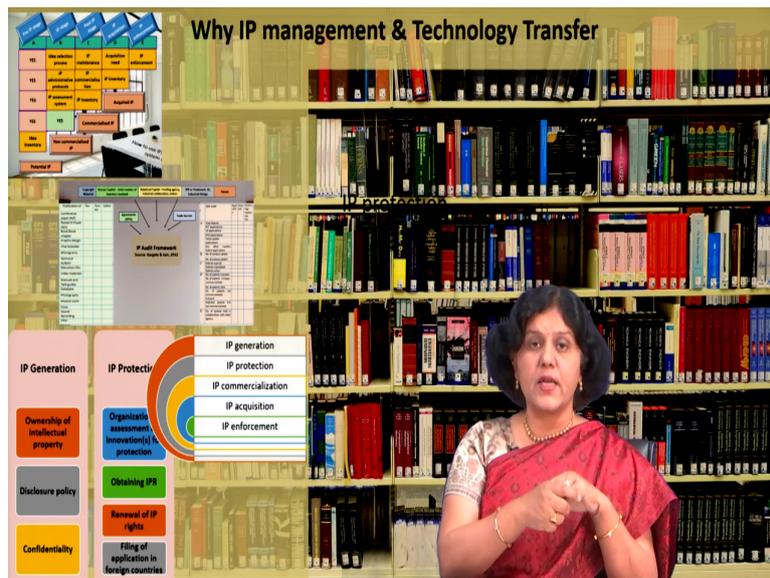


**IP Management and Technology Transfer**  
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**Indian Institute of Technology, Kharagpur**

**Lecture - 05**  
**IP and its Role in Education and Research**

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A very warm welcome in module 5 of week 1 of the course Intellectual Property Management and Technology Transfer titled why IP Management and Technology Transfer. Now, probably you are aware already aware about a different types of intellectual properties, then different type of jurisdictions and how intellectual property have a different arrangements in different jurisdictions.

Then it is expected that you probably knowing about a world intellectual property organization and such details such a basic details regarding intellectual property. If you are

not knowing we have dedicated the next week related to the different types of intellectual property; that is a different 8 types of IPs and we are sharing with you the links of the videos which are recorded related to that particular IP.

So, that you can if you are not aware about the details about say patent or a copyright or of the semiconductor and the act which is enacted in India which is a switch analysis system. You can just go through that particular details and you will get idea about that different types of IP and details about forms and then the procedures and how exactly it is used effectively for the creativity whatever your creativity is there for the protection of that.

But now already we have understood the different types of IPs in the earlier session we have covered already. That what are the different types of IPs we are creating as a stakeholder as a member of a academic institute and we know that definitely we are creating lot of IP in academic institute.

And the contributors may be students, may be faculty, may be staff, may be lab related the activities which are going on and the associations the we can say that the collaborations which are going on already may be there. So, everybody is contributing in that creation actually.

But probably we may not be aware about how to manage that particular creation and for that this complete course we would dedicated we will like to we can say that we will cover that yes now we are understanding yes we are creating IP, but how to manage that particular IP and what exactly we understand by a IP management. And then the next step that is a technology transfer.

Now, when we are talking about IP management in the course in the upcoming sessions you will just see that you will come across with a different models, different frameworks and we will share with you how to use that framework, how you are going to use that framework for.

Calculating IP credence or how you can calculate or check the status of the IP system of the organization or how you can built up your IP management system, how you can go for a

technology transfer, how the contract is drafted, what are the important points in the contract, all these we are going to cover actually.

But why we should study this or why we should understand this particular IP management and technology transfer we will do this, but for what? So, when we are talking about IP again very important thing always we are talking that IP is for a wealth creation. So, whenever we are creating IP we are expecting that some or the other way the activity is affecting or effecting economy.

Some activities which probably are very we can say the promising you are creating IP commercializing IP and then that will built up we can say the economy I can directly say that it is related to economy we can say because suppose example I can give and then we will go into details and we will see that how academic institute and IP management is important, how MSME and academic this IP management is important.

So, when we are talking about this intellectual property management what exactly we are doing is a we are managing the IP life cycle. We will go into details of that in the upcoming sessions, but we will try to understand that generation creation that generation or creation of IP is there and the last step is a commercialization and in that particular process what is happening that you are creating a wealth and that wealth if you are a MSME the impact is limited to that local area if you are a big organization the impact will be definitely more.

And if there is a chance that some IP may be. So, promising that it can affect or it can show the complete like a effect on the economy in a sense I can just take example of restriction and nucleus like examples such a we can say the disruptive kind of a innovation invention I should say and that pushed the creation of a company which like started with a just 1000 dollar and it become a giant that is a gigantic

Or a Google example if we take that one patent page ranking patent it help to built up that part it is a starting point that one patent was the starting point and then and in order to say about alphabet now right it is started with a Google and now it is a part of a alphabet.

So, that growth is there when we are talking about a effective utilization of IP and you can just see the different models here the frameworks here and in the course you will come across different frameworks models how to use that everything we will go into details actually. Now, when we are talking about this IP.

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I have already mentioned that there are different types of IPs and I am just talking that yes definitely it is related to economy. And we talked lot about a entrepreneurial activity when we are talking about a entrepreneurial activity if it is a technology driven patent which is one of the type of IP is playing major role. And when we say IP management related to startup we have to focus on the especially the patent which is creating the base for that development of that startup.

I just given you example of a Google started with a page ranking patent or a gigantic which is started with a restriction endonuclease related activity that Cohen and Boyer who have developed or who have invented that particular restriction endonuclease. So, in short what is happening is like that IP is created the technology is developed that technology will be protected and with the instrument that is IP and then we should know how to manage that we are creating it that is one of the part of management and we are we manage it.

And then technology transfer is another part we will little bit glimpses I will try to give you now in this session, but we have a dedicated two sessions on this technology transfer. Now, when we are talking about this IP management and technology transfer you can.

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We will just focus as I have already told you the discussion around the four we can say important entities or important organization academic organization is there research

organizations are there MSMEs are there Indian industrial organization the Indian organizations mean I mean that industrial organizations actually.

So, when we are talking about that industrial organizations or MSME or research organization or academic organization the setup is different the scenario is different objective is different outcome is different, but definitely every organization is actively creating IP. The question is whether it is identified it whether it is managed properly whether it is commercialized whether we are getting benefit out of that and that we have to do in the IP management.

Probably now if we focus on that different types of actually the intellectual property that we know that there are 8 types.

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The image shows a woman in a red sari speaking in front of a bookshelf. A slide titled "Why IP management & Technology Transfer" is overlaid on the left side of the frame. The slide contains a flowchart and a source reference.

**Why IP management & Technology Transfer**

The flowchart on the slide illustrates the process of IP management and technology transfer. It starts with "Innovation" leading to "Intellectual Property". From "Intellectual Property", it branches into "Patent", "Trademark", "Copyright", and "Industrial Design". "Patent" further branches into "Invention", "Utility Model", and "Design Patent". "Trademark" branches into "Word Mark", "Image Mark", and "Sound Mark". "Copyright" branches into "Literary Work", "Musical Work", "Dramatic Work", "Cinematograph Film", and "Software". "Industrial Design" branches into "Product Design" and "Graphic Design". The flowchart also includes a "Commercialization" path leading to "Market".

Source- Roadmap for patent creation  
lecture 3

And you can just see this the different classification of a property and that is tangible intangible property and then intangible property under that intangible property that intellectual property is that is a part of intangible assets or intangible property. And this intellectual property you can just say that there are 8 types.

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And there is a definitely the dedicated acts are there which are taking care of that particular IP that is you can just check that there is a patent act then there is a copyright act then there is a trademark act design act is there geographical indication related protection related act is there then there is a protection of plant varieties and farmers right act is there we have then semiconductor related act then that there is a biodiversity related act is there.

So, the system that is a legal system is already that the frame the legal we can say the arrangement the act is already there to take care of IP we can create that IP we get the

protection whatever define in the act as per that act. And now the question is how to manage and when we are talking about a management the three important parts are there that is generation protection and commercialization we will focus on only this these three points and when we are talking about IP management that generation protection and that commercialization that processes will be different in different setups.

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The four setups which are talking about that the protection generation and we can say that commercialization that activities will be different and we say nowadays that the we probably commonly use word is we are in a knowledge economy and when we say that it is a knowledge economy that the we are expecting we are expecting that the whatever creation is there intellectual outcome whatever is there that need to be protected and therefore, intellectual property is very important and its management.

So, we the creation and its utilization effective utilization is very very important when we are talking about the intellectual property.

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When we are talking about IP again the most important point we have to remember that if we think about intellectual property just like air is everywhere IP is everywhere and continuously you are creating either you are creating IP or you are utilizing IP of somebody else.

Now, simple example now also if you take that the mobile or the laptop whatever you are watching this video it is coming under a trademark. Then there are so, many patents around that mobile or that laptop then the whenever we have bought that there is a manual. So, the copyright is there.

So, when we are talking about anything around you; obviously, trademark will be there or patent will be there or copyright will be there or industrial design will be there. So, we are surrounded by intellectual property. So, somebody have already created that and we are utilizing it or you are if you are in that phase of creation you are creating it and then somebody will utilize that particular IP.

So, if such a huge creation of IP is there definitely we will require the streamline processes for the management and therefore, understanding that why IP manage that how to do that IP management is very very important we can say. So, when we are talking about intellectual property management sometimes that there is a possibility that if there is a management is not proper there may be that the litigation the litigation issue may come.

And there are big giants actually Colcom or Apple or Samsung or Micromax and then Google they face the issues related to that particular IP if it is not properly managed.

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And if you see the damages it a it is like a millions or billions and if you think about such kind of infringement if happened in academic institute or if it happened in the MSME.

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Or an individual is doing this particular infringement probably the such kind of a litigation is not affordable for that when we are talking about this copyright infringement or patent is like use unauthorized if use is there then probably this is not the if you are not managing that IP properly this kind of issue may be like arise in the future and we have to avoid.

The another issue may come it is like this that if we will not protect our IP suppose you are a startup and if we are not taking care of own IP probably somebody will copy that IP and as you have not taken any IP protection then there may be the issue actually or when you are working on that technology whenever you are developing that technology there are chances that.

So, many new things come out actually or you will feel that yes this is something added we can say the new things which you are adding into that particular whatever technology you are

developing. But for that incremental changes or incremental development if you have not taken the protection probably the issue may come of infringement and I will not say infringement also because if you have not protected it there is no question of infringement.

So, anybody can copy it very easily because that legal protection is not there. So, forget about the legal issues which may arise when we are creating that IP we the protection of that IP is very important if we will not protect it somebody will use it without the our permission and we do not have any remedy in our hand if that IP protection is not there and that is a big problem actually.

And the efforts which you have put may be 5 years 6 years whatever efforts you have put for the development of that particular startup it will go in when because of that copy by somebody else ok.

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So, we have to take care about that particular litigation related issues. So, we have to avoid that particular this kind of a scenarios so, and for that IP management is a very important.

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Now, when we are talking about IP management licensing.

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Again the that is one of the point which is related to which is a part of tech transfer actually when you are talking about a licensing of the intellectual property technology transfer that aspect comes into the picture. And that understanding that how to do licensing what type of license how the that agreement will be there that contract arrangement how we should proceed for that all these details.

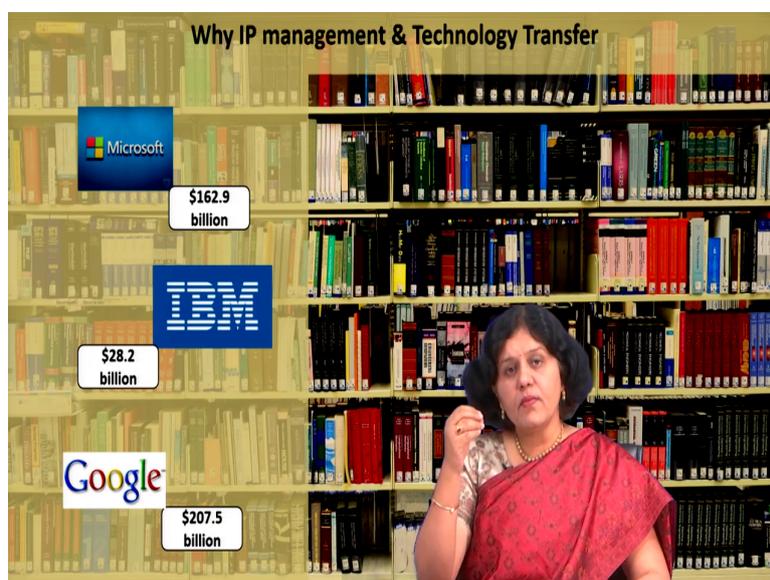
Once we know probably that will be much easier for us to handle the further development of that particular technology. So, in short when we are talking the technology is like growing when we are working on that technology the development whatever is going on that will create IP and when we talk about a protection of that or commercialization of that is we are talking about the IP management right.

And when we are like taking help of somebody or we are giving that rights to somebody when we are like doing the technology transfer means. Probably you are already doing that particular activity, but this is like IP management and technology transfer and there are like the guided kind of a streamline processes are there.

If you follow that properly probably we will not miss on a any of the IP which is created. And probably that we have understood in the whenever we have gone through the IP and academia that two sessions we have dedicated and we just given you the idea that this much IP you are already having. And probably as we are not aware about that we are not managing it or we are not exploring it or exploiting it for a wealth creation.

Now, the examples of IP licensing you can just see here the Samsung or Ericsson example I am giving, but you can just say that licensing is a very routine activity and wherever technology is growing either in-house licensing or there may be outward licensing in-house development or inward licensing and outward licensing is always a common process in the organization.

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Now, further when we are talking about the IP development portfolio development and its management a few examples you can see here like a Microsoft is there IBM there and Google is there. Now if you see that number actually the development of IP portfolio especially I should mention here that IBM is like a last 10 years it is like a top IP creating organization.

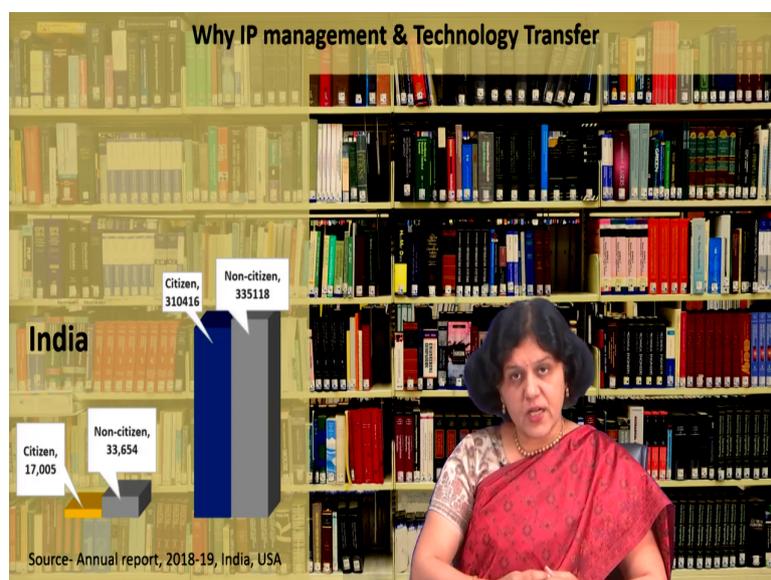
So, 8000 9000 IP that patents I am talking only about the patent 8000 to 9000 that range is always there 8000 plus I have patents are filed by single organization that is the scenario. And then we think about whenever we are talking about a valuation of this organization IP valuation trademark valuation then it is around 50 billion dollars. So, such a kind of scenario is there.

So, why this number this big number like a 50 billion dollar the value of a trademark or the portfolio IP portfolio in that only patent portfolio I am talking which is of a 8000 patents that

8000 plus patents actually. So, how they are managing that and why they are creating that and how they are doing that technology transfer and definitely this kind of a creation is there; this kind of a trademark we can say that valuation is going up to 50 billion dollar. So, it is like effectively managed.

So, only this kind of a outcome we can see ok.

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And this will help actually in the startup context if you see this kind of a scenario that is a trademark valuation or a patent valuation that will help you to the create the funds actually when we are talking about a fund generation. If you have a patent if you have a trademark and you know about the IP management fund raising probably will be much easier and therefore, we should know that yes what is that IP management how I can do the technology transfer.

And this number you can just see here this is little bit old data actually, but the point which I want to make here is that if you see the patent filing by India and patent filing by USA I am just comparing it with the one country and just to give you idea that yes we have to kind of if we see the scenario of IP filing it is not that great considering the nation.

We are improving definitely the number in last year is like much more improved, but that we should not satisfy with that particular number because 1.4 billion and then the patent number it goes into thousands and then that is not acceptable thing and we have almost 50,000 plus universities

Now, 50,000 plus universities 1.4 billion population and IP filing if it is like in thousands definitely it will affect our economy and therefore, if we want to improve economy because now we are in a technology war it is common word which is said that it is in the technology war we are in the scenario knowledge economy technology war all these words are very common nowadays.

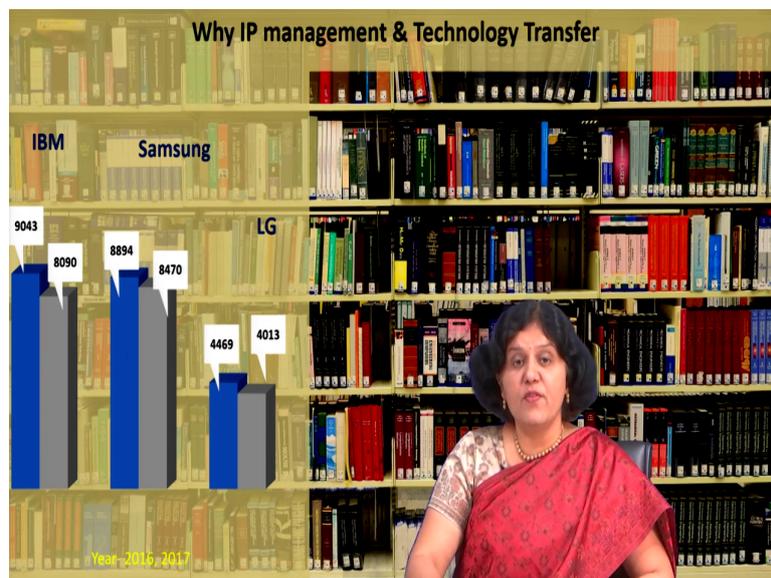
And when we talk about this kind of a scenario IP is the important I will say one of the important protection for the creation is provided by that instrument like IP there are other ways there are other strategies, but IP is giving you that competitive advantage. And therefore, its management under technology transfer is very important when we are talking about the that technology or any artistic development all this the separate IPs are there.

And then geographical indication we are reaching that actually we have lot of that because of the variety the different cultural aspect is also and because of the geographical locations and the conditions we are having that advantage of that. So, many different types of GIs that is a Geographical Indication.

And their management again is like a very we can say the important and definitely that will help us to improve our economy I am very responsibly making this statement because there is a direct relationship between the IP its wealth that commercialization and the impact on the society.

Because there are case studies that because of particular IP in that particular region the economy of that area is completely improved and I can tell you that the classic example is of a Darjeeling tea you can take it is like a very classic example that how or basmati rice if we take. So, these are the geographical indication and that they are already prove that the IP protection is there then it is like helping in the commercialization.

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So, we will move further and we will just check that this numbers actually again related to the organizations and the patent filing just I am giving you the numbers because we can just appreciate that these organization as a single organization filing these many patents then as a country how many patents we should expect I am just comparing it.

Because we will get the idea that 8000 9000 IPs patents are filed by one company and as a country if we are filing resident filing if it is going around 20000 30000 that is not acceptable.

Because unless we protect it we will not think about the commercialization protection or a generation is the first step and then only we will move to the commercialization and then the technology transfer. And therefore, this IP management we can say it is a very very important

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Now when we are talking about the intellectual property and the new upcoming areas we have a dedicated session on that these are the few I will just give you the glimpses of that words. So, that you will appreciate that yes there is like a various we can say that patinformatics is there or there is a IP evaluation is there or there is a portfolio building is there.

So, all these examples whatever you are seeing here that these are the like a separate the deep detail study if we do that is helping you in the technology management IP that R and D management. So, for example, we have dedicated one week on IP analytics actually and how

this IP analytics is helping us in IP management the we have also shared here case studies actually in the course we are sharing with you number of case studies.

So, that it will be easier for you to apply that particular theoretical knowledge directly to them that the scenario the whatever scenario you are thinking you can directly apply that. So, for example, when we talk about a IP audit framework we are sharing with you the examples where we have applied that framework.

We are also sharing with you the IP audit model where we have applied we will share with you the example or IP analytics we are giving you the examples that yes this is how the IP analytics is helping you for your IP management ok. So, these are the few we can say the emerging we can say the technologies and related to that this IP development is there that emerging areas in IPR there ok.

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Let us move further and we will just focus on now the that we have already seen that yes IP is for a wealth creation and along with IP when we are talking about the IP wealth creation is there, but the next that is the open innovation.

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So, why open innovation I am talking about IP is like a complete protection that yes I will keep a control over my innovation invention. But when I move from that controlled scenario towards the we can say that open innovation a classic example Android is there that the combination of this open innovation and IP that is helping us for the that science and technology development when we are talking definitely we have to take a balanced approach.

Although we are talking lot about IP management we also have to appreciate and make best use of this open innovation for the technology development and that is possible and rather

that is very beneficial ok. So, we have like shared with you about the that open innovation and how it is helping in the science and technology development.

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And actually how IP and open innovation are related we have dedicated one session on that also. Now when we are talking about that sector means area wise so, we have seen that academic institute when we take there is a different scenario when we are talking about research organization there is a separate that different scenario is there or if MSME is there the scenario is different and when we talk about the industrial organization scenario is different.

So, now you can just check when I am talking about the Indian organization a few examples you can see here.

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Mahindra or BHEL or Indian oil or ITC I have given a few examples and these are like a leaders we can say you know IP finding maybe the trademarks maybe the patents and considering that the government Navratna industrial organization BHEL is there and their portfolio is definitely a promising portfolio is there. So, let us compare the scenario in Philips and Siemens.

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I am talking about a IP management and the scenario considering these organizations with the Indian organization. Now this IP management scenario I can say very clearly that and the with the research actually it shows that we are far behind considering the IP management.

We are if we see the portfolio of the organizations like Philips or Siemens and if we see the portfolio of a comparative Indian organizations definitely there is a there is a big gap and the reason is like that the processes which are followed for IP management in these organizations is really a different and compare to the which are followed in the Indian organization and this is our research is showing this particular scenario.

We have in depth studied the organizations and we have observed that there is a big gap actually and we have to understand that what is that gap and how we can improve and

probably this course will help you to understand that what are the different processes which probably will help you to built up the IP management system.

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Then if we take a next example of a MSME that is a Micro Small Medium Enterprises we are like when we are talking about these organizations these are we can say there are few MSME is the scenario is such a promising that they are creating the IP and 100 percent commercialization is there.

Again this is with a the practice because I have worked very closely with MSMEs and I have seen that they file the patent 100 percent commercialization with a good returns immediately the incremental change next patent is filed. And they are building up the portfolio of that patent actually and market not only Indian market they are capturing they are capturing European market or US market this is the scenario such a promising scenario is there.

And we have filed successfully the patents also we have got the grants in 20 26 countries by filing the patents for MSMEs and the wealth creation out of that patent commercialization is huge actually. And there are some MSMEs which probably are unable to utilize this IP and there might be some reason and what that reason is there and how they can improve on that particular IP creation and its management.

That definitely when you go through the sessions you will get idea that what probable is lacking and what probably we can built up and we can improve on the management system so, this is about the MSME.

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When we talk about the research organizations again when we are talking about say CSR I have given the few examples here and I can share one example that when the in the practice whenever I was doing practice I have seen that the we know that life of a patent is 20 years

ok,, but the in one of the organization the research organization that patent was in 19 year and then it is came for the commercialization.

So, you have to understand that we always say technology life is very short and compared to the legal life. And although we say 20 years many times the life is like very less actually and it depends on the technology and if this is the scenario that in the 19 year then only 1 year you are getting some revenue that also we never know that whether this technology is that is there in the market or some other technology is like a replace the earlier we can say the technology we never know.

Because technology become obsolete in a few years only or few months only it depends on the inter technology sector which technology sector that particular development is. So, we have to; we have to and this is like a with a real examples actually I am sharing here that when we are talking about and obviously, there are very classic examples that huge commercialization and huge gain especially there are the academic institute also who have done the good we will go into that actually that good commercialization is done.

So, the few research organizations are definitely working well and they are doing the IP management. Problem is like that we are creating IP the we have the strong IP base only the problem is we are not utilizing it that is the observation. And again we are working we have already completed the work on the one sector considering industrial organization then we move to the academic institutes then we are working on a research organization how they are developing their IP management systems and how it is there and already in with MSME we have already I have already worked with the MSME.

So, in this four scenarios whatever I am sharing the I have seen the closely that how exactly the things are happening and therefore, and I always feel that when if we do the IP management effectively we need not to worry about the further we can say the wealth creation or whatever we are expecting out of these ventures we need not to worry if we do the IP management properly.

That that somewhere that lack is there and we are trying to share our learnings whatever our learnings are there. And the inputs from you will be definitely helpful for us to built up on that particular whatever we are sharing you can built up your understanding or your observations and discussion forum is already there.

So, probably we together can improve on that particular IP management related models or the framework. So, that it will be helpful to everybody ok.

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And then moving further academic institutes when we are talking the I have already shared that there are organizations which I have already done a successful technology transfer that faculty members have created the technology and it is sold with the good returns actually or a startup is started with that particular technology ok.

So, that kind of a scenario is already there setup is little bit different academic institute,, but definitely if the that development is there research because the benefit in academic institute is a that there is a continuous research going on actually if the you we are like a research oriented organization academic institute lot of research is going on the understanding of yes it is qualifying for IP is the issue at many places that is the observation and many times the misconception is there that IP filing is a the tedious one that is a misconception is there.

And then the further IP lifecycle management that cycle is there that further development cycle is little bit not streamlined and therefore, or many people are not aware about that thing that is the issue. So, if we understand that exactly how exactly we have to come probably it will be very helpful for the building up the IP portfolio right. And considering the IP research.

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Now we have talk about the IP development actually and then the further its utilization portfolio building and wealth creation. So, when we are talking about the IP research like we are dedicated now we are working on the say IP valuation or we are working on patent pooling or we are working on the management related models.

So, the inputs will be very useful and improve our research based on your inputs actually and technology transfer when we are talking the scenario is like that when this technology transfer is there contract and agreements and then the negotiation these are the important thing and we have to work on that.

And we have dedicated two sessions we will go into details of that, but if our contract is weak or of if our negotiation is weak actually or we do not know how to go for the that negotiation meetings and all probably that is the hindrance actually for the technology transfer.

So, we will share few details about that in the last two sessions related to technology transfer. So, summarize if I want to summarize it when we are talking about this different four different scenarios actually.

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That is the setups that academic institute research organization MSMEs and Indian organizations and if we deal the IP management and technology transfer in these organizations. Overall the observation with the research the we can say the past 10, 15 years research in this area my observation is like that we are very good in generation.

The MSME research organization academic institute Indian organization of the generation wise we are definitely very good,, but the further processes like IP management processes from that generation till that commercialization we are little bit we have to improve on that.

And probably this course will help you to understand we have shared it is a very primary course we can say a basic knowledge about the IP management it shared your or technology

transfer. So, that we can get the little bit idea about the IP management and if you want to develop it further and all probably you just write to us we will help you in that ok.

So, I guess this much information or this much idea about the how IP management is going on in this in at current stage I guess it is sufficient and I hope that this course will help you to implement the processes in your organization and built up your IP system. And here with this we are coming to the end of this session.

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And we expect that you can just share your views your inputs in the discussion forum and we will interact to improve on IP management and technology transfer. So, see you in the next session.

Thank you.

