Entrepreneurship Essentials
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Module - 06
Lecture – 30
Design and Innovation – V

Hello and welcome. So, in this session we are going to talk about open innovation and just preliminary introduction on IPR. I will try to give you some knowledge that will help you to decide whether to file a patent or not and when to file a patent etcetera.

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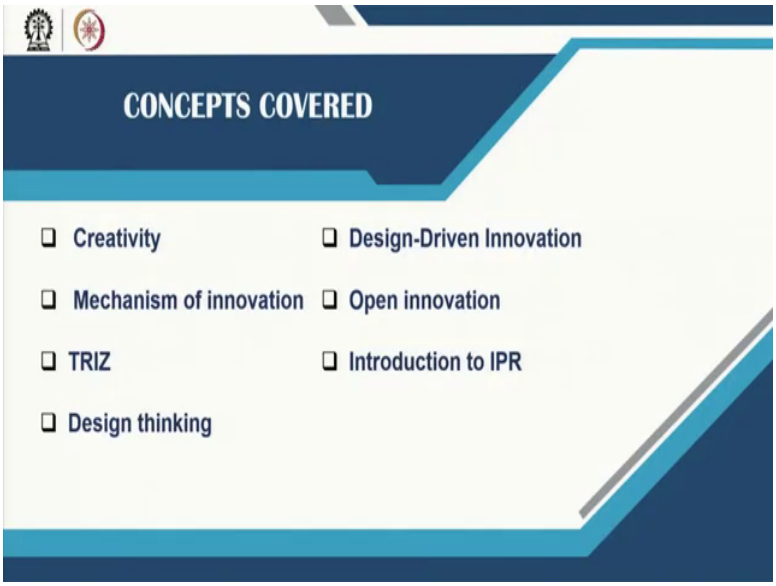

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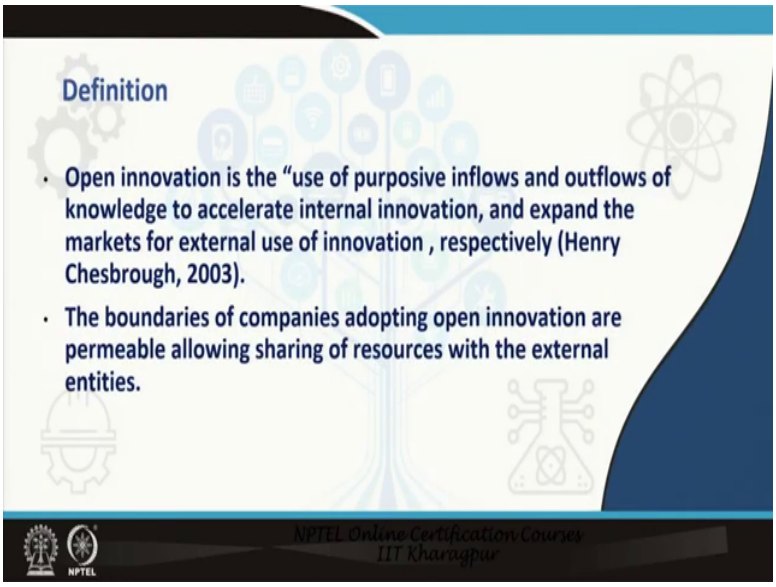

Before that let us talk about open innovation a little bit not in a big way, time is short. Open innovation actually is a the term actually explains the sharing of knowledge between different companies, different entities like you have some knowledge, somebody else has some knowledge combining together it may be a wonderful synergy.

The meaning of synergy in very layman's term is 1 plus 1 is greater than equal to 2 or greater than 2. Meaning that you have something I have something we combine the two, the sum total becomes the sum aggregate of the parts total of the parts. So, suppose I have some say tablet manufacturing capability and you have a formula using which we can make tablet and sell as medicine as maybe drug.

Whereas you have the formula you have you can sell that formula to somebody maybe for 5 lakh rupees, I can use my infrastructure to earn something whereas, we two together combine,

then both of us can earn much more than what we have been earning now. So, the sum total becomes much more than individual the total of the individual. The boundaries of the companies adopting open innovation are permeable meaning that they always invite knowledge from elsewhere.

And they whatever knowledge they are developing they also share the knowledge with outside world not for free maybe free there are creative commons where everybody develops and then share free of cost like Linux like many others where people develop for the sake of the society at large.

But then that is a very niche domain of open innovation otherwise also meaning for revenue sharing for mutual benefit people use people adopt open innovation. Henry Chesbrough coined the term open innovation.

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So, let us see how he defined. Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas and internal and external paths to market, as the firms look to advance their technology.

So, they take ideas from within, they takes they take idea from outside and then combine that. And then either they go to market directly or they go to market through some other party that is what the next construct says internal and external paths to market.

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Now, if somebody particularly in today's it was always difficult, but particularly in today's world you want to develop something groundbreaking it is going to take years, it going to take millions of dollars if not billions.

Suppose you want to develop a new drug for a cure of a disease say corona virus or something, it is going to take billions of dollars to first of all come up with a with the knowledge what the virus actually is what is it is protein structure of the RNA.

And then come up with a molecule that will damage this protein structure etcetera is going to take so much of experiments so, much of trials and tribulations that it is very difficult for any startup entrepreneur imagine.

Even big companies like say big pharmaceutical companies even they will look upon to the government for money to really venture into this because it is so risky. You spend a billion dollar there is no guarantee that you will come up with really something tangible. So, what they do is they will be doing a small part of this whole drug development process, then they will take a partner who will also try whosoever maybe there are 5 partners whosoever come up with something that is even remotely close to a solution or close to the formula will share with the other.

So, that they also can move in the same direction because there is light at the end of a particular tunnel. So, everybody moves in that and then nobody knows who will come first with a solution. So, whenever they come up with a better solution everybody shares and then direction changes.

Now, as they move forward there will be another partner where they phase on clinical trial is cheaper or they have the capability, they have the wherewithal, they have government flexibility for doing clinical trial, phase 1 trial is on human and it is not yet fully proven. So, they gradually tested with limited doses and all that and see what is the side effect and all that.

So, this is very costly again. So, rather than taking all the risk they distribute the risk, they gain the knowledge that other peoples are creating. So, this is this makes almost like a utopian proposition. So, everybody is benefited and everybody create their wealth, everybody reduces his or her risk. So, it becomes faster because so many people are attempting from so many

direction everybody is innovative. So, everywhere some innovative thinking is happening and things are moving really fast.

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Open innovation embraces external ideas, knowledge in conjunction with internal R and D; obviously, you have internal capability, people have external capability.

So, you can use your own knowledge and outside knowledge and it has been established that firms who have adopted this philosophy who have collaborated with outside world have flourished, have sustained and others who did not they died natural death.

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And it has also been it also been observed that there are many great companies who build knowledge and they shared the knowledge with outside world and the outside world created great companies using that knowledge. Like Xerox is a wonderful example that example is given on various contexts with various perspectives. Xerox discarded many of their innovations thinking that this is commercially not viable.

Meaning there is not going to lead us to anywhere that is going to make money. So, whenever somebody came up with something that Xerox thought it is not relevant they said fine you have done something good, but leave it for a while and then you focus on something else. So, that knowledge did not benefit the society. Then somebody came and he found that knowledge or maybe the research scholars who were doing the research they challenged the

management of Xerox and they said no this is good you should implement you should commercialize they said no.

And then these researchers adopted the technology and started company they created a huge company. The sum total of the value of those companies have more than the value of Xerox today.

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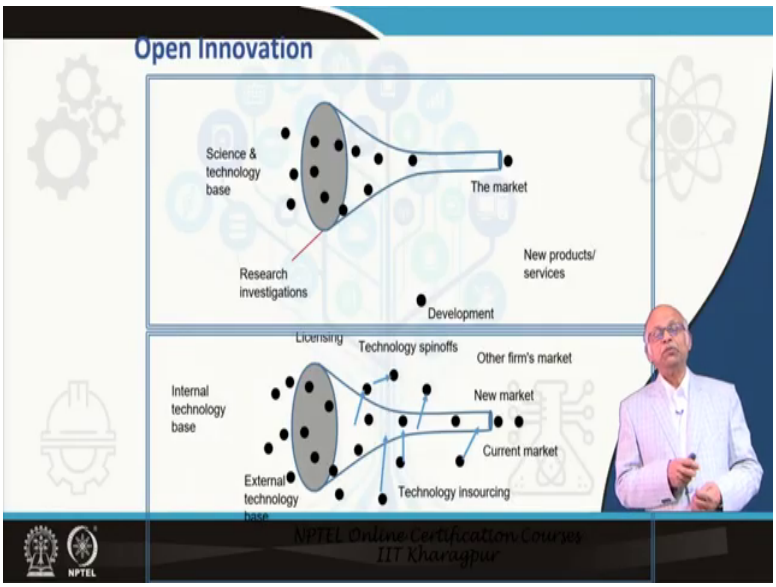

So, the first one the top one is an traditional method that is not adopting open innovation that you have a laboratory, you have umpteen number of ideas, you are testing those ideas, you are spending money. And then out of maybe 100 ideas you have one success story.

So, you are set back you are you have spent so much of money to come up with one success story maybe that success is not going to give you the money that you have already spent.

Compared to that the bottom one is the open innovation format wherein your funnel is porous. That means, at every stage you are bringing idea from outside to the inside, you are also sending idea from inside to the outside.

And then in the process you are gaining knowledge you are giving knowledge to outsider. So, none of the knowledge that you develop are going down is going down the drain. Because it is being used by somebody or the other that is it.

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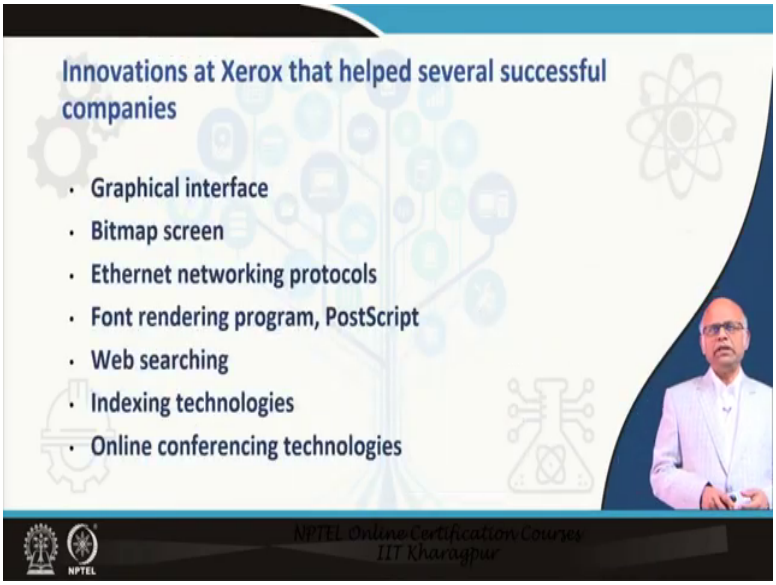

Now, the companies that Xerox created it is enormous.

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Let us not waste so much time. Even Apple, Adobe, Microsoft these are all these all came from Xerox.

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So, open innovation actually helped us to accelerate development process because things are happening from multi dimension from different angles, from different dimensions. Reduces cost of production product development because everybody has some core competency they are exploiting that. So, eventually cost for everybody is coming down. Reduces skill gap because you may be skilled in something somebody else is skilled in another thing.

So, you are you are collaborating definitely when you select somebody you look at complementarity of the skills, so you are not short of skill. Help to beat competition; obviously, reduces risk, most importantly it benefit is the society. Just think of think of corona virus if through some open innovation collaboration some people come up with a solution, it is a society which is going to get the maximum benefit; obviously, companies will re commercial benefit.

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But society will have less risk and there will be kind of an assurance of our of our survival. Here is a nice example, but slightly old, but Indian example a new research program aims to capitalize CSIR and IMTECH's; IMTECH's is by Johnson and Johnson's they have a Parma division called Janssen.

So, they are expert in converting a early stage drug molecule into a commercial commercially viable drug or commercially marketable drug. So, CSIR did the basic research, IMTECH did the research moving forward and then there was a wonderful collaboration.

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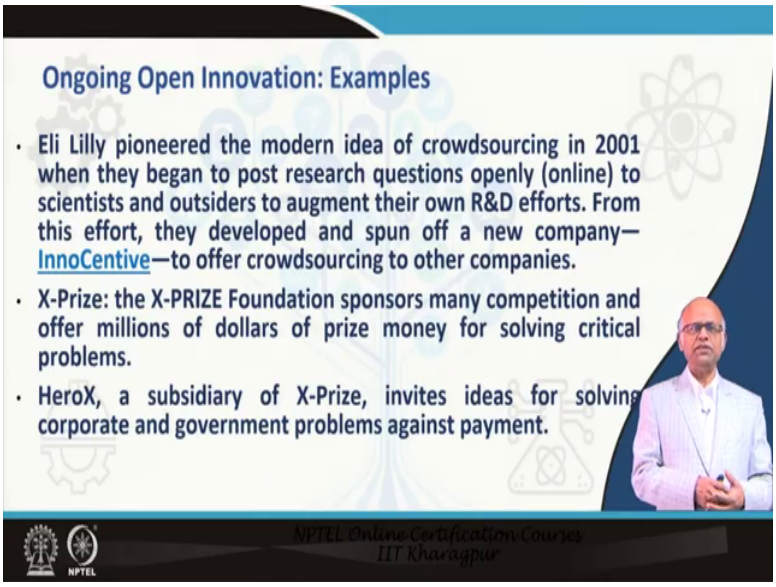

This is not so much academic, but you may be interested in this, see there is something called InnoCentive is another called X-Prize and HeroX 3 different initiatives. Eli Lilly is a pharmaceutical company in US and at some point of time they thought they thought maybe we can crowd source some of our some of the ideas, some of the solutions for which we are not finding in house. We have problems not finding solutions.

So, why do not we broadcast this problem to the public? With an with a with an assured reward. So, public let public or some research laboratories do the research and come back or somebody may already have a solution they will come back and give us a solution. And they found that this is a wonderful idea and there are many people who are eager to solve problems and they do not have problems. Money no money they regard to solve of course, Eli Lilly has

given money you visit InnoCentive dot com you will find that there are so many problems listed that immediately you will find you can solve some of this.

And there are thousands of dollars of reward at the end if you really come up with a solution. So, InnoCentive is bringing problems from various companies, various entities they list their problems in InnoCentive website, InnoCentive broadcast this to their registered consultants you can be one of them.

And then you submit your solution you get money same is X-Prize; X-Prize of course, is much bigger than InnoCentive X-Prize, prizes are almost like 1 million to 10 million dollar or maybe even more. Slightly smaller which is a sister of X-Prize HeroX they also come up with umpteen number of problems hosted by many people and you can give a solution.

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And earn money, earn recognition that you have the capability to think of the out of the box. Then innovation in gaming is another wonderful area which you can emulate in your own software development initiatives. Suppose you build a software now from building it to troubleshooting or removing bugs or testing is a huge problem in software industry, it requests many man hours requires a specific skill talent.

Now, suppose you are developing a game using some software you can upload that and there will be many innovative kind of customers who are looking for a new game they will immediately download maybe they will even pay you some money, they do not mind paying little bit of money.

But then they are going to come back telling you that look you have this problems and I have already found this solution. So, you can remunerate him or you can actually get the solution give them some freebies and then you have a solution this is another open innovation. It results in many expert hours of development meaning you have to hire people.

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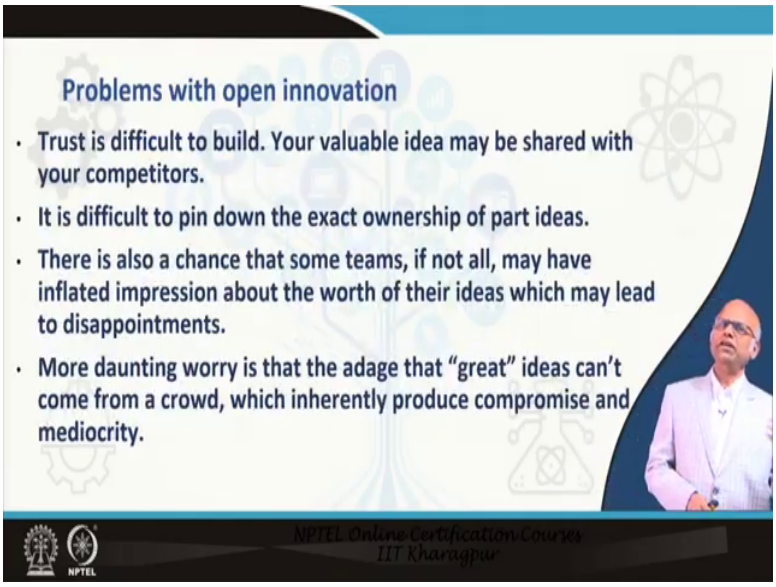

And then you have to pay them many hours of remuneration to really solve to the extent that other people are helping you to solve. Problems there are problems offset in open innovation like there are external entities and intellectual property is a huge issue about innovation.

So, you are in innovation with outside world. So, you will always remain exposed to your for your intellectual properties that you have already built and you are going to share because unless you share some of the knowledge they will not be able to help you. So, in a process you are going to be exposed to the external world and you will never know who is good, who is bad, who is ugly, unless the real picture comes out and by that time everything will be gone.

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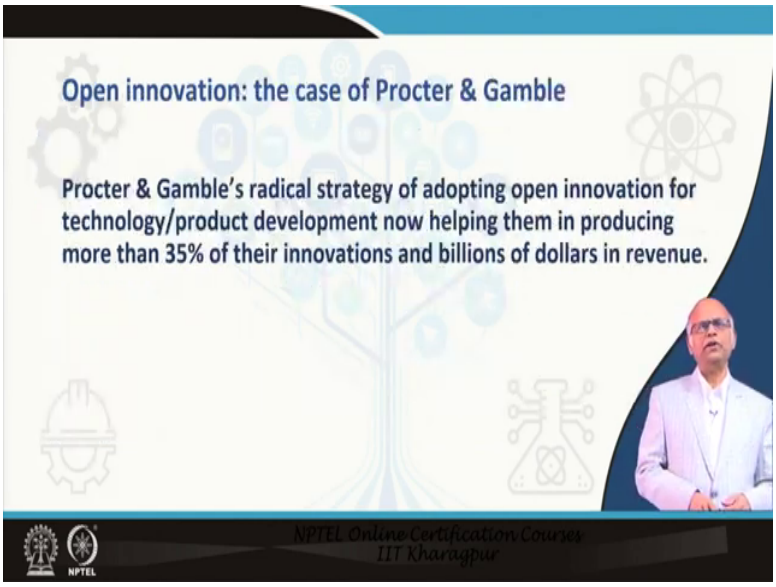

So, there are problems about open innovation as well. Procter and gamble; Procter and gamble is a pioneer in implementing many of the things in innovation, they have pioneered the corporate entrepreneurship as well. So, they are pioneer in open innovation as well not exactly the pioneer, but then they have applied it in many places

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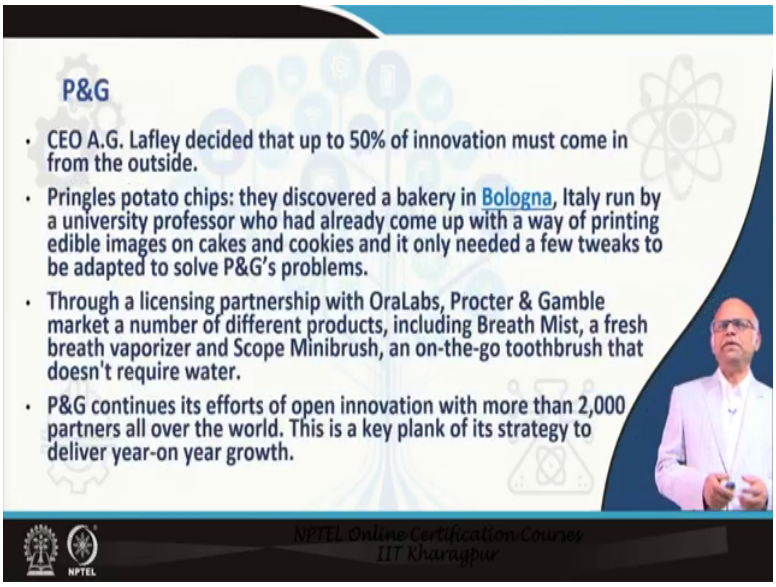

Pringles or printing figuring on potato chips was a problem and is a nice case in point. The brand is Pringles by Procter and Gamble.

In fine morning somebody said if we put some picture or image of some game heroes perhaps people or children are going to buy them because they are fan of particular heroes and if they see that those heroes are printed on Pringles they are going to buy that. So, everybody thought this is a wonderful idea, but printing on food is a challenge.

So, they thought we have to now think about an injecting of food grid ink on Pringles which will require years of research, if not at least 2 years of research. And millions of dollars for R and D for prototyping for ideation, then they thought why not outsource it in open innovation format.

So, they a started scouting for ideas and they started with their own vendors who are supplying or doing manufacturing for them. Then in Bologna Italy there was a small company, a university professor was running a bakery. And the idea came to his mind long back that he can print something on food and he built that technology that printer as well of course, it was not so sophisticated.

So, Procter and gamble identified the idea, they found that almost major portion of the work is already done now we have to just refine that. So, that it becomes sophisticated, so that rather than printing it on bread it should be able to print on potato chips; potato chips is dry and humidity is going to damage the crispness of potato.

So, there are some challenges about the ink, but then they could do it in a very short time. Had they not applied this philosophy they would have ended up spending so much money that doing this after some such an investment would not be profitable.

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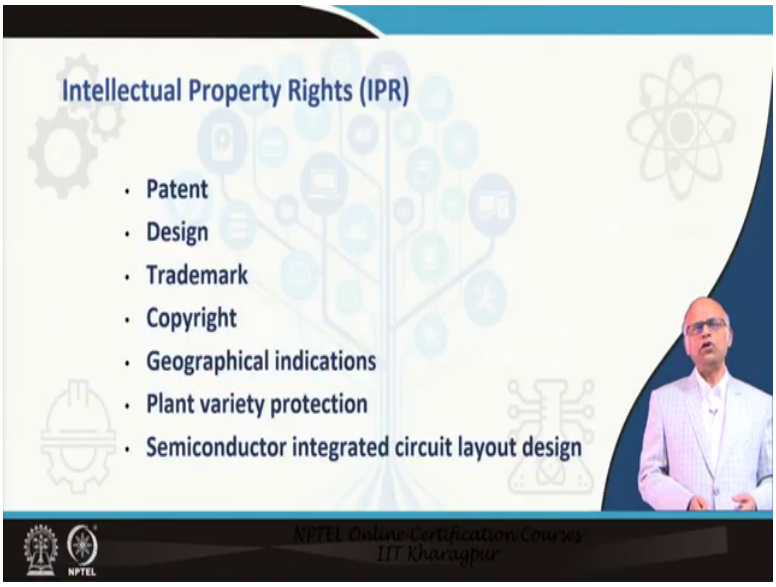

Let us just introduce intellectual property rights, there are various kinds of intellectual property rights like pattern, design, trademark, copyright, geophysics, geographical indicators, plant variety protection, semiconductor integrated circuit layout design. I will discuss about patent in general, but let me just define others as well.

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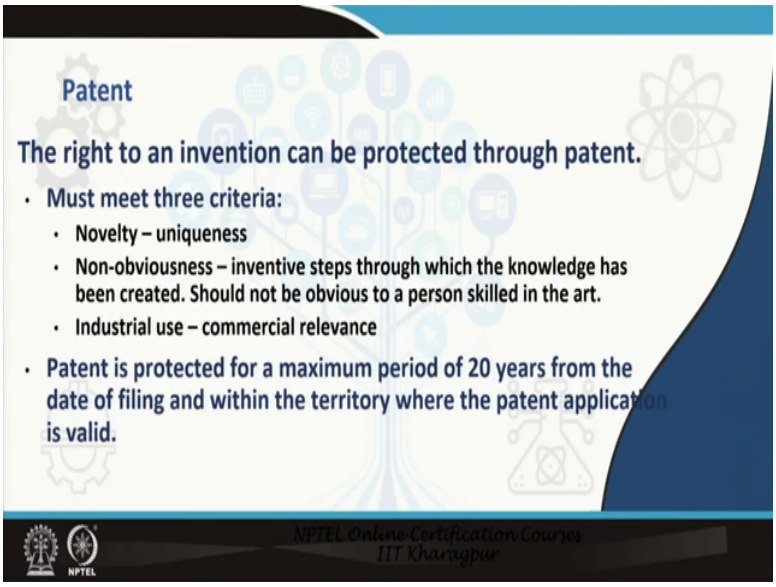

So, patent you need three particular features of an innovation for it to be patentable; one is novelty; that means, it must be unique; that means, it is not known to the world. Suppose you have you have come up with an idea; idea is not patentable you have to put it in the form of a prototype only then it is patentable.

If not prototype it must be in the form of a design you can have a design on a piece of paper and submit for patenting and pattern may be granted. So, novelty first, now suppose this idea is already there in the form of a published literature somewhere you will not get a patent number 1.

Number 2; non obviousness, meaning, that you must follow some research and development, some tedious work some rigorous work to come up to this level. If anybody with some

background knowledge tells us that, I could have done it without anything it is obvious because I know this. So, extending that knowledge I can do it you would not get a pattern.

So, you there should be some rigorous step by step research meaning that it should not be obvious to somebody, some tricky knowledge should be there. Then industrial use your thing your technology should be relevant to our society or for a manufacturing process of an industry .So, if any of your initiatives satisfies these three criteria, then it is patentable.

Now, how to go ahead and do a patent? You have to write a patent a specification. Now, there are patent attorneys, there are patent agents anybody can become a patent agents even you can become a patent agent by giving an examination. It is very it is not very difficult there are books available you just read the books give an exam and then you get to know the formalities by filing a patent is cakewalk it is very easy.

But then gaining expertise to file a patent is a very involving thing. You can always file a pattern, but to protect your ideas the protect the nitty gritty of your ideas, to understand the distinction between your innovation and others innovation. Understanding how somebody is infringing on or you are infringing upon somebody else's intellectual properties very difficult thing.

So, that requires engineering knowledge, scientific knowledge that requires talent as well cognitive skill as well. So, once you decide that I am going to file a patent if you are not a patent agent even if you are not a patent agent you can actually file a patent you have to have digital signature. Now, you have to approach to the patent office there are many patent offices in India, Calcutta being the headquarter but you can approach to Bombay, Madras perhaps Bangalore, Hyderabad may have Delhi also may have a patent office. You can you can visit Indian patent office website and get to know.

You have to pay a fees, if you are an enterprise you have to pay 10,000 rupees as fees you are, if you are individually you have to pay 1000 rupees as fees and submit your specification your specification. Will have the claims what whatever you claim and writing the claims is an art.

So, you if you take help of a patent attorney he may if you are an individual he may charge something like say 10,000 rupees to draft your patent specification and submit on your behalf follow it up and pay 1000 rupees of fees. So, total maybe 11 to 15,000 rupees

If you are an enterprise the fee itself is 10,000, then attorney may take another 10, 15, 20,000 rupees. So, it will become something like 30, 35,000 rupees to file a patent in India. Now, patent is valid for 20 years, but when you file a patent today and if you do not maintain your patent within 365 days, it is going to lapse.

Which means that every year you have to pay patent maintenance fee to Indian patent office only then your patent will remain valid otherwise it will lapse and you will have no patent. Anybody and everybody will be able to copy your patented technology because it will be it will remain in the public domain. So, be careful as to when to file a patent, is it right time to file a patent? Patent remains valid for 20 years.

Suppose you file a patent today for 20 years you do not do anything, then it becomes public property it does not remain your property. If you if you try to commercialize that after 15 years you can you will have your own right only for 5 years not beyond 5 years, but after 20 years nothing remains.

But then for 20 years you have to maintain, if you are an enterprise your annual fees for maintenance will be something like 15 to 20,000 rupees because attorney is going to take money from you and then pay it to the patent office. If not 20,000 for individual it is likely to become 5 to 10,000 rupees that is another decision. Most importantly as I said if you do not pay fees every year your patent will not remain valid there is another very important issue that.

Suppose today you file a patent in India. So, today is 22nd February you are filing a patent in India within 365 days; that means, 21st of February next year; within 21st of February next year if you do not file patent in any country other than India your patent is not valid in any country other than India.

So, to protect your patent in any particular country you have to file a patent within 365 days in that country. Suppose you file a patent on 22nd of February in India and you file a patent on the same technology in China on say 20th of February next year.

So, it will remain valid in china and India not in us not in Bangladesh, not in Europe not in Japan, not in any other country. So, you should know that the moment to file a patent it becomes public knowledge and if you do not file patent in all the countries your patent is not protected in all the other countries. And filing a patent is almost the cheapest in the world in India.

You file a patent in us you will require something like 2 lakh rupees, Japan it will be even more, China slightly less, but not like the kind of money that you pay in India is going to be costly.

So, if you think of filing a your patent in 100 countries you may require 1 crore rupees. So, think because you can always file a patent slightly moving forward and then particularly the closer you file a patent to the commercialization the better it is because if you commercialize your technology to a company, the company will take the responsibility to maintain the patent in geographies wherever they have business interest.

Suppose you file a patent in India today you commercialize somebody takes a license from you and he or she starts commercially exploiting that. They are going to make profit using the profit and if the thing that they are going to sell the product in China as well they will immediately file a patent in China.

So, that your technology is protected in China that is how your patent strategy has to evolve gradually it is complex it is not as simple as it looks like, but you have to move forward gradually. To help us a little bit in this initiative there is something called patent cooperation treaty.

There is an organization called WIPO world intellectual property organization. The headquarter of WIPO is in Geneva Switzerland, it is an arm of united nations. WIPO is the epics body to look after any kind of conflict in intellectual property across countries.

So, suppose India has an issue with China WIPO is the body where you should make a complaint. So, WIPO formulates IP policy for the entire world. Now, they have come up with a novel idea that is called patent cooperation treaty whichever country has rectifier or ratified the patent cooperation treaty it is valid in those countries, what is it?

It gives and gives a window to you of 30 months within which you can decide in which country to file a patent. Meaning that if you file a patent today in India within 30 months nobody in any of these signatory countries can copy your idea, copy your technology.

So, you have a 30 months window to decide where all you want to protect your technology. Suppose you file a patent in India on 22nd of February, then you have to file a PCT application with WIPO, it costs something like 1,00,000 rupees or so 1,00,000 to 2,00,00 depending on the kind of fees that you pay to the attorney.

There are prior art search mechanism and you should understand what is prior art. Prior art means if anything exists that claims the knowledge that you are claiming in your filing, it is a huge topic and prior art search it iself is a business and it iself is a great art.

Suppose 10 people are performing prior art search for single thing you will find 10 kinds of findings. There will be 1 guy who will come up with real knowledge that something equivalent exists maybe 9 people will not find it. So, it is a complex thing.

Now, suppose you have filed a patent in India on 22nd of February, then 30 months from here within 30 months from this date you are given a window to approach to possible companies in various countries to take a license from you and help you to file a patent in those geographies.

Suppose you identify a guy in China, a guy in England, a guy in us and another company in Japan who are interested in your technology. So, sign an agreement with them, tell them that my technology is protected for 30 months within this 30 months you have to file a patent in your respective countries that is a condition.

So, they are going to file because they have they are giving you license fee hefty money. So, it is their not only their prerogative, but their responsibility to file patent in their country and protect it against any kind of infringement in that particular geography.

So, that is a very important, but then it is a leeway that that WIPO has given us, but then even 30 months is a very short time. You should file a patent only when you are about to go public about it you have to give a presentation with somebody and it is going to be exposed to the to the world that is number 1 or you have decided to transfer the technology to somebody. So, you have started negotiating. So, you file a patent and immediately you transfer the technology it becomes their baby and they protect the technology they add value to that etcetera.

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Design patent is another one where there is no technological innovation per se.

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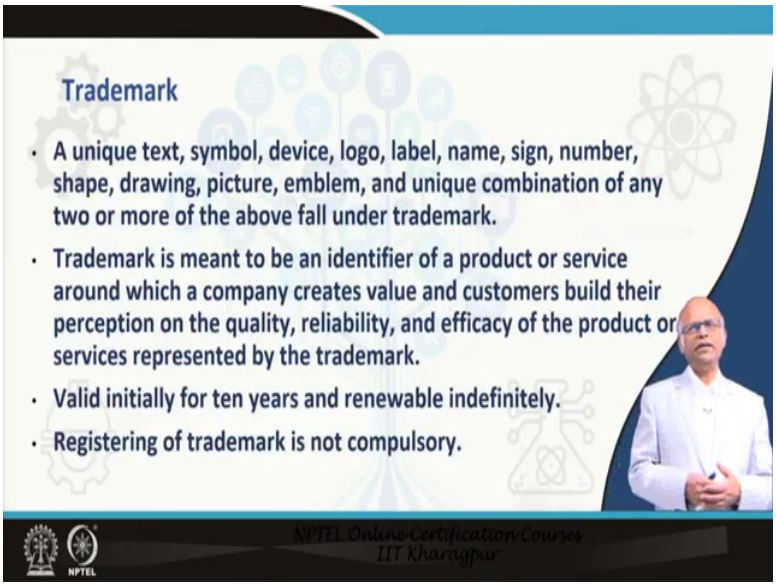

But it may be some pattern composition configuration color, design per se means design a form of the design form factor etcetera. Then there is trademark it is perpetually valid as long as you renew, it is just some symbol some words, logo combination of that. It remains once you protect even if you do not protect it if it is implicitly known it is protected. You can go to court and tell the court that look this was existing somebody is copying it today, if you can prove with the data that historically it has existed it will remain protected.

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Copyright is valid for 60 years after the death of the creator, it is like software code sound, recording, cinematographic, music, dramatics these are copyrighted.

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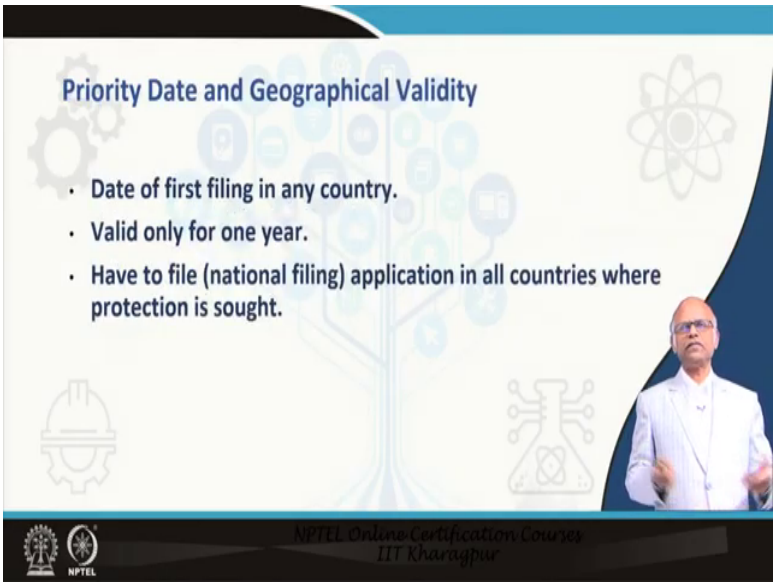

Now, there is a conceptual priority date I just forgot to mention priority date is the date when you file a patent for the first time. Suppose you are an Indian you thought that I will not file a patent in India today I will file initially in China suppose on 22nd February you filed the patent in china, but in India you file only after a few months.

Your priority date is second 22nd of february because that was the first filing date and your patent will remain valid 20 years from the priority date. Your window of 30 months given by WIPO or for PCT will start from the priority date. And if you do not file a patent within 365 days from the priority date in india and you not have a PCT you will not have protection in India you will have protection only in China.

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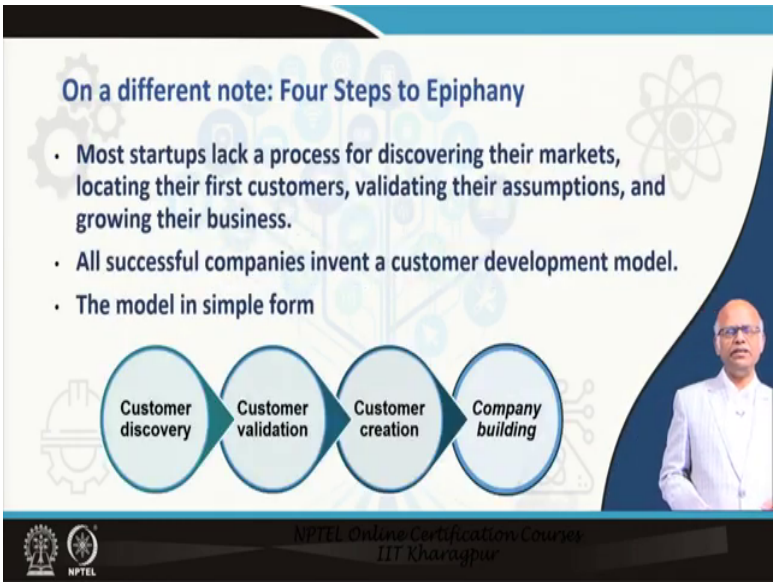

So, this is about YCT sorry WIPO and pct. On a different note this is absolutely different not with IPR most startup lack a process for discovering their market is from a book called 4 steps to epiphany. If you have time you should read it is not within the syllabus, but you can always read and gain some more knowledge customer discovery, customer validation, customer creation and then company building. These 4 steps are very important and then wonderful insight has been given in this book you can read that.

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Last note you should under promise and over deliver. So, to give customer a pleasant surprise, customer when the customer purchase something and there is suppose some free gift and that was not told him to him that some surprises coming he will be wonderfully surprised that I did I wanted this and I got something extra.

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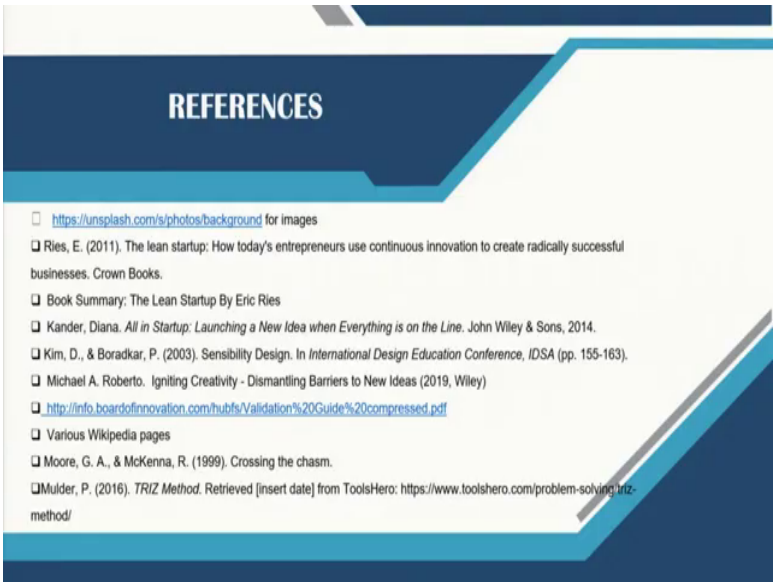

Some reference it is a common reference for all design innovation slides there is mostly repeated, that is it and.

Thank you.