

# **INTELLECTUAL PROPERTY PORTFOLIO MANAGEMENT**

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**Lecture - 10**

Welcome friends. So, we are discussing about trends of IP filing at a global level where we discussed in our last session that how different organizations at the global level they are choosing between the Paris Convention and PCT and we also discussed that there are particular few countries which have taken a lead in the global patent filing. We discussed that how China has taken the role of big brother not only in the overall patent filing, but also in the global patent filing and then few other important patent offices including USA, Japan, Korea and then European patent office.

These are other most active patent offices across the globe, and India is obviously also catching up. We saw how numbers changed dramatically for India from 2012 to 2013 and all of a sudden when we were operating at a level of around 17,000 patents we increased to 43,000 patents in that 2013-2014 and then slowly we are continuously moving between 45,000 to 50,000 with respect to our applications. And we also saw how PCT applications are close to thousand every year in the last five years from India.

So, after understanding these few initial trends, let us dive into this area slightly more and then we see that very important graph, which is directly taken from the WIPO website, and this picture gives you one important idea. Like one of the important hot technology at this moment in the world is digital communication. and in this digital communication area China is becoming number one you see China is number one in digital communication. So, you need to continuously keep an eye on Chinese organizations that what type of R&D efforts new product development is being done in China or in other words if I want to have collaborators My first choice should be the Chinese organizations because China is leading the world in terms of global patent filing in the area of digital communication.

Then second important company in the area of digital country is Korea and then Japan and USA are almost at the same level. So, one important area for India is the digital communication. The second important technology is important that is where most Indian companies have an interest in IT, IT enabled services, which are mentioned here as computer technology. In India we are more towards software. But hardware also plays very important role when we are talking of computer technology and we know some of the biggest companies of the world in the area of computer technology IBM or similar other companies are all coming from USA and therefore obviously USA is number one in the field of computer technology.

Because most of the patents whether it is Microsoft, IBM, Google etc. are coming from USA and that is the reason USA is number one in this particular field. Followed by Japan and China at the same level and Korea is at the third level. So, if I want to collaborate or my working interest in the field of CS computer science, Computer Engineering USA is a good choice for me. And in India if you recall in our previous class we discussed that BHEL is a very important company filing most of the global patents after CSIR.

And here, countries like Korea, Germany, and Japan all these countries are the top position holders in the field of electrical and other heavy engineering machinery. While in this case China has a low performance. Similarly, there are various other categories on which you can have because in this graph, in this diagram, we have only five important countries mentioned at the top. So, therefore, we are not able to show you in some of these lower graphs which country is number one or number two because like for example, in the measurement area, I have only data for the third.

but the first and second are missing. So, I request all the audience of this particular course that they should check this WIPO database and where they will get the complete diagram that for which technology which country is number one because we have a sample data only to present in this video. So, I have only limited information but for example, in electrical machinery energy sector you will be surprised that who is number 2 because number 2 is not coming in this diagram number 2 is on the right side of the diagram. So, you this becomes a kind of a homework for you that you should check the database on your own and find the position of 1, 2, 3 with respect to all these important emerging technology areas in this case.

Another important assignment that can be there for example i am talking of computer technology now computer technology is a very broad world and in this computer

technology in which particular area you are getting maximum applications, whether it is related to ai whether it is related to machine learning whether it is related to cyber security whether it is related to hardware So, that will also give you more insights and which are more strategic insights that which are the emerging areas whether people are more interested in cloud computing or edge computing. These are two different types of technologies that can be part of overall computer technology. But as a student as a researcher we can go deep into these things and find answers of these things.

it is not very appropriate to give answers to all these questions which I just said. Because over a period of time, this number keeps changing. So, the 1, 2 and 3 numbers which is mentioned in this diagram that is also not permanent. This is as per the March situation may be in March 2025, these numbers will change. So, when you see this video

You just check with respect to your current date that what is the situation because if you are seeing this video in 2025 or 2027. these numbers may change. So, these are the numbers which are only for this particular year and there are chances that out of these five nations one day India will also come in 1, 2, 3 with respect to any of these technologies. So, therefore, I am just giving you the hint that we can find such type of rankings with respect to top technologies and you will get the two important things. You can understand what are the top technologies in which PCT applications are filing.

So, if I say, if I ask you simply, what are the most important technologies in the world at the moment? How will you answer this question? What are the most important technologies in the world at this moment? So, by your own guess or perception, some of you will say clean water technology is the most important technology. Some of you will say technologies for the cancer treatment is the most important technology.

Some of you may say technologies related to cyber security is the most important technology. But here I give you a very good indicator that based on the technologies in which PCT applications are coming, you have a very good categorization, very good categorization Another assignment which is possible from this particular diagram that you can continuously whenever you see this video you should also know that what is the number of these technologies that how many PCDs because we are giving this diagram on the basis of numbers of applications in this particular technological domain. So, how many PCT applications came in electrical, machinery, apparatus and energy areas? How many applications are coming in computer technology?

That is why these are ranked 1, 2, 3, 4, 5, 6, 7. So therefore, over a period of time, it is also possible that a new technological area emerges which becomes more important. Like you see here half 3, 4. Medical technology is at the number 5 right now, as you can see from this diagram. Maybe after 3 years or 4 years, medical technology may become number 1, and some of the number 1 technology may become number 10 also.

This diagram is a very dynamic diagram. It is not a static diagram. You cannot use this diagram at its face value. You continuously need to go to the databases and see that what is applicable at that current time because here the time stamp is very very important.

So, I am again and again cautioning you just because when we are developing this course what is the situation at that time this data is representing this information only. Similarly, this is also a dynamic data which is there in front of you now like companies which are filing we discussed in the previous slide countries the relation of country with technology. Now, we are discussing in this next slide which are the top companies that are going for international filing. And as you see first three are in the area of digital communication only. Where you see that China and Korea.

These are leading, and you see that Huawei, Samsung, and Qualcomm all three are Chinese and Korean organizations only. And that is how they are making huge, huge profits because of they are the leader or rather you can say they are shaping the markets in terms of digital communication at the global level. And then other companies are also there. But like why? The way it is ahead of any other, it is a competitor.

Samsung is almost at the half of the Huawei's graph. So, that is the reason companies are getting the benefits of their IP protection. So, after discussing all these things, all these trends, data, etc. In one of the earlier video also we discussed that how we are selecting the country. Global patenting, global IP filing is must.

Now, we have realized this. And by just perception around us, the kind of products we are using, we understood that it is very very important to go for global filing. Now, some of the important tips for selecting our countries for global filing, cost is one factor, what will be the cost of protecting your invention in different countries. However, I personally feel that this is not a very important factor because if your business interest and your return are sufficient you will somehow manage the cost.

So, cost is important as a overall factor of global filing, but for selecting the country once I have decided that I am going in these four to five different country then cost of IP

protection in that country cannot be the very important factor for deciding yes or no in that country. You need to see other things also that what is the attractiveness of the market. So, this market attractiveness this is more important factor And wherever you have attractive market, even if you are unable to manage the funds on your own for IP filing in that country, I am 100% sure.

you will be able to get support of investors and other agencies who can give grants also and who can be part of your business also. They will support you if it is an attractive market to get protection in those markets. Where are your competitors? Already we discussed. Are there any country specific laws to consider?

This is also important thing when you are going for international filing. Because every country has a different kind of law. Now, there may be some friendly countries, there may be some hostile countries. So, you have to be slightly careful while you are selecting the country that the laws in that country or not only laws I will say, I will go one step ahead. What is the general law and order situation in that country?

If general law and order situation where you have independent judiciary, then only you will be able to get proper protection of your IP in that country. If a proper law and order situation is not there, judiciary is not independent in that country, even if you have a business interest, I am 100% sure it will be very difficult to enforce your IP. So, country specific law and order situations, and the overall environment of law and order, justice environment in that economy that country is also important criteria to be considered in selecting the nations. Where might I set up a regional operation in the future?

May not be your immediate business interest in those countries, but you can consider that there may be some kind of supply chain activities in future in these areas and that futuristic scope okay today I am not operating in that nation but maybe two years down the line I may start some business activity in that area. So, considering those things also sometimes you may be proactive to protect your IP in those countries but it again depends on your bandwidth. how many resources you have and whether those resources are sufficient for your current and future requirements. Otherwise, we focus more on current requirements rather focusing on the future requirements.

This is the process of PCT. We have discussed in the last two sessions also that how we are this timeline is very important. that you have filed your application in the patent office and this is known as priority date. So, the day you file your application in the patent office your meter starts running from that particular day and that is very very

important in all our communication. You must have seen in our earlier videos that we use this term priority date.

So, the priority date is the date on which you file your application in the patent office. Because there are multiple type of dates which will come because there are so many activities which happen during this process of granting of patent. So, there may be confusion about which date is considered to be the priority date. For example, there will be a date on which your application will be published in the journal.

So, some of us get confused that because now on that particular day your application is coming in the public domain. So, whether that is the priority date. There will be another very important event when you will get the grant of your patent. So, whether that is the priority date. So, to clarify the priority date is the date when you are filing your application in the patent office.

you can file your application in the international application with the PCT and there are different types of offices as I already mentioned in my one of the session. Like in India, you can file a PCT application in the Indian patent office as well as there is a separate office of WIPO and that WIPO office can also take your application. So, it is possible in many countries, the WIPO office may not be there or WIPO may not allow the local patent office to take PCT applications. So, in the case of the Indian patent office, WIPO has permitted the Indian patent office to also act as PCT. ISA and that is a kind of credibility of Indian Patent Office because they can function as an international search authority also.

Then after the application is filed in the PCT office you are getting the search report international search report ISR stands for international search report and you get written opinion on that search report opinion of the examiner not examiner the person who is doing the searching and then after 18 months your application is published in the international journals and then these three stages are mandatory if you remember we talk of mandatory and optional stages. So, this is mandatory stage and these two are optional stages. Examination of your report and additional search on your report two are the additional steps which are optional not necessary everybody to do.

And after this you finally get a search report and with the opinion of the international office and then you go to the national phase. The national phase means filing in desired country or region with report and opinion of international phase. So, the international

phase report and the opinion will be used in filing your application in the desired country or region.

So, the points that we were discussing in the previous slide that how we are going to select a particular country that will be useful in this national phase. In this international phase, there is no role of considering that part, but when it comes to the national phase, you have already identified which country. So, like As I mentioned all these steps so in a pictorial way you can understand that once you are your application is published in the global journal in the patent scope you can go to respective this is basically you are going to the respective countries or the regional patent office and these regional patent office or the national patent office will finally grant the patent.

So, granting is done only when you enter into the national phase if you are only in the international phase you will only get the PCT examination report but not the grant of patent. Sometime let me also take this opportunity because of non-awareness some of us feel that either PCT filing is enough for the global patent and getting that PCT examination and the opinion that they consider as the grant of global patent. So, this is a myth this is not correct we need to understand After getting that PCT examination and opinions we need to enter into the national phase where we will get the final grant of the patent as per the law of that country or region.

One of the very popular you can say region which is a combination of various European nations is this European Patent Office. If you see all the data which we were discussing in that either we were discussing the data of China, the USA, Korea, Japan and the fifth was European Patent Office. So, this is a very unique model where some of the European nations they come together and they have formed this European Patent Office and the beauty of this if somebody says that is there a global patent. We say no. But yes, there can be a regional patent because companies are coming to the European Patent Office because it will give their protection in 45 countries through a centralized and uniform procedure that requires just one application.

So, this is a very interesting and quite effective system that with one single application you are able to get protection in 45 different countries which probably is not available in any other system. The European patent office is actively contributing to the development of the IP ecosystem in the entire of Europe. the system of global filing, now some procedural issues. In the procedural issues, one thing is E-PCT applications, particularly post COVID, e-PCT is increasing significantly that you can file online application for

your PCT international patents. Continuously, the number is increasing and in 2022, around 33% of applications are coming on online format and the offices of Australia, India, Singapore, Turkey,

are receiving over 99 % of applications in e-format. So, you can be very happy that from India also most of the applications are coming for global filing in the online format only. And in this way you are not seeing here China And the USA which are the most important so in this way you can say that IT related awareness is very high in country like India. So, we already have discussed that organizations like Huawei that is the leading in the case of PCT, Samsung and Qualcomm.

Then further Mitsubishi from Japan and BOE again from China. And because in this list there are Chinese companies which are at the top. So, the global impact is also similar in that China is one of the top. global patent filer. And when we see one very interesting data, that data gives another perspective.

And this perspective is that conversion ratio of direct residence patent application to PCT application for top 20 countries. The meaning is that I filed application in India. Now within 12 months, I have opportunity to go for PCT also and I can go for PCT in that case, but then I am not interested in continuing my application in India, I am only interested in PCT and that is conversion ratio of direct resident patent application to the PCT without getting the Indian patent or I am not interested in the Indian patent but interested in the PCT application.

This is giving a new name now and that new name is Israel. So, in Israel they are filing the application for the patent but then they are converting these applications in PCT and the number of this, this ratio is 2.29, which is way ahead of any other country. In case of India, it is just 0.10, very small. Now, what does it mean?

That an applicant from Israel may forgo filing an application at the Israel Patent Office and opt instead to file a first application at the USPTO and then convert that prior filing into a PCT application. So, most of the Israelis, most of the Israelis are converting their applications into the international global filing rather filing on their own country and that is the reason that Israel is a very small country. The inventions which are happening in Israel are generally getting protected in America because companies like IBM, companies like Apple, companies like Microsoft, they are taking the major interest in the technologies which are developed at Israel.

So, this is also a very important point that and now you see most of the new names in this list. So far in our discussions we talk only big names like China, USA, Korea, Japan, Germany and European Union. But here we are getting the names like Singapore, we are getting then all these are the countries of But Australia is also figuring, then Turkey is also figuring, but these are all less than one. Only three countries, Israel, Sweden and Singapore, have more applications getting converted into PCT than the direct applications in their own country.

While in case of India etc this ratio is just around 10 percent out of the all applications just 10 % of the applications are getting converted into PCT and remaining applications are remain in the direct applications. Another very interesting distribution of data is available in this slide and this data again I will say will change over a period of time. But here the data is arranged in an interesting fashion that who is doing global filing, PCT applications. So, it is across business, you as an individual, university or government. These are the four sectors which are considered.

So, from 100 % of the contribution coming from the business to almost 0 % of the contribution coming from the business, that is the spread of this data. So, the 100 % contribution of global filing is coming from Mauritius. However, there is a caveat also here. The caveat is that we have mixed big small all types of nations in this graph. So, if I see the overall number of IP created in Mauritius maybe it is few thousands only.

And in that case saying the 100 % contribution is coming from business may be slightly misleading. But even then since the data is directly taken from WIPO I go ahead with explaining this data. So, the in case of Mauritius 100 % patents are coming in the global stage from the business. And on the other extreme, you see Iran. In this case, around 96.5% of global filing is coming from individuals.

So, these are the two extremes. In one case, global filing is coming from the business organizations. And in other extreme, global filing is coming from the individuals. Though, in case of India, if you see the India's data, It is quite evenly distributed, evenly between businesses and individuals.

So, a good component is coming from a business that is around 56.4 % share is coming from the business sector. While other sectors are also contributing there is a bit contribution of educational institutions also. There is a small contribution from government organizations also and there is a significant contribution from the individuals

also in case of India. So, India's data is slightly evenly distributed. While you have just seen like in case of Morocco it is very interesting that in case of Morocco

Majority of data means global filing is happening from university. Education institutes are very very proactive in case of Morocco. While all individuals, universities, government organizations are not at all interested in global IP in case of Mauritius. So, like this data. Ukraine also.

In fact, the government has no role but there is a significant role of individuals and around 17 % contribution is coming from the business sector. So, this slide gives you so many inputs which can be explained in a variety of ways. So, with this, we are almost at the end. We also have one more interesting slide where if I see from the gender point of view that with respect to gender PCT applications are distributed.

So, here also you see that share of women though again it is slightly eye opening. Islamic country is having more contribution of women inventors in the PCT application that is coming from Turkey. And in rest of the other countries, you see that share of women inventor is relatively less. Like in case of India, it is... around 11.6.

But when you see some of the other developed countries of the world like Germany, Japan, etc., here the contribution is even less than the India. So, across the globe we can say The maximum which is coming is 24% that is from Turkey. China is around 24%. So, there is a very skewed contribution coming from the women inventors in the international arena.

And this is a very interesting outcome that 96% of all PCT applications have at least one man as inventor. So, whereas only 35 % of applications have at least one woman inventor. So, men are almost by default part of your international applications while so one interesting input can be that we can promote more women inventors to go for global patents. or you can have one woman in your team which can be if we want to have gender equality and various other SDGs to be fulfilled with the help of our invention ecosystem. So, with this we come to the end of this particular session where we discussed some interesting trends more in depth and we understood how at the global level different types of IP activities are happening and which country

is using these applications in a more strategic manner than other countries. So, with this again thank you very much for watching this video.