Welcome friends. So, as we are seeing that when you have a portfolio of IP with you, you can do multiple type of analysis using this important resource available to you. And one of the important use of this database portfolio which is available to you is creating a landscape of your entire patents or I can say the landscape of entire IP. And why it is important?

Why should we create this landscaping of our IP portfolio that we are going to discuss in this particular session. We will be taking example of most popular IP that is patent for this particular purpose that why patent landscaping is required, what are the importance of this particular analysis, how are we going to do, what is the process of this. what type of reports we are able to generate and we will also see with some live examples that how can we create the landscape of our patent portfolio. So, for that purpose let us first start understanding that what is the meaning of patent landscape which is also known as mapping of your IP portfolio.

So, this gives you a very comprehensive overview of IPs within a particular technological field within a particular industry or with a company. Now, it is up to you what basis of mapping you are going to choose. you can take basis of technology, you can take basis of industry, you can take basis of a country, we will see with the help of live examples that how this maps will change with respect to the kind of field you are going to select. Then it involves analysing, categorising the patents which are on the basis of different types of parameters such as technology which is the technological field, geography that is basically country, who is the assignee of those patents, the citation networks, all these legal status whether it is live or dead

all these things are possible when you are going to have the, there are databases, there are softwares which are available which help you to customize the reporting of this map as

per your requirement. So, multiple analysis are possible and that is a very important purpose of IP portfolio because once you have a detailed portfolio with you, you can analyze it in multiple ways and here my interest is not in IP portfolio which I have. I am considering the IP portfolio of a particular technological field. I am considering the IP portfolio with a particular industry.

So, we are going slightly on a more macro level in this particular session to understand the use of IP portfolio. So, this is as we understand now it is very insightful analysis of the obtained patents, publications to make some very useful constructive inferences and then you can go deeper into the IP activities in a particular technological segment. So, if more new IPs are created in a particular field it means that it is a very upcoming area. If number of IPs are decreasing in a particular technological area, then you can simply conclude that now it is a dying.

So, there may be some sun rising technological areas, there may be some declining technological areas. So, any industry, any startup who is looking to see some new opportunities, certainly you will like to go into the sun rising areas, not in the declining areas. So, that is about the patent landscape. Now, why should we do patent landscape? As an organization, as an individual, why should I do the patent landscape?

So, the companies, the organizations, they are using this patent landscaping to make strategic decisions with respect to decisions with respect to, you see. One is investment, how I am a startup, you are a investor and you are a big company. Now, if I am going for some kind of investment from you, you will see that whether I am part of a sun rising industry or a declining industry and based on that you may make a choice whether to invest in my startup or not. So, that is one kind of decisions Second kind of decisions are with respect to R and D. I want to decide a new scope of my research.

Obviously, you all will like to do research in the sun rising areas not in the declining areas. So, R and D directions can also be decided on the basis of this patent or IP mapping. wherever you have a increasing growing trend you will like to be part of that nobody will like to be part of a declining trend. Then it can also be very useful for analysing competitors activity. When you are doing patent mapping with respect to assignees that who are the major assignees in this particular area.

For example, if I want to see upcoming area as AI where a lot of new development is happening, image processing. If I simply see that which company has maximum number of patents in the field of AI, I can consider that yes this is the market leader because of

the technologies it is able to command in AI field. in the image processing and in fact, All these are possible questions which you should be ready because these are the practical uses of all the things which we are discussing. You need to do this kind of search in the databases and then when we are going to have the assignments and quizzes, weekly assignments, weekly quizzes in that we will ask similar type of questions that which is the market leader in AI, which is the market leader in image processing and so on other technological areas also.

So, now with this you are able to understand that patent landscaping actually informs about the innovation policy, investment opportunities, competitor intelligence, knowledge transfer because it is also possible that if there is a transfer of technology. That transfer of technology can also be tracked with the help of this patent landscaping. So, how the transfer is happening of the knowledge that is also possible and geographical profiling. For example, if I want to see about robotics. So, whether China is ahead, America is ahead or Korea is ahead just to know this.

I can go to geographical profiling of the patents which are coming in the area of robotics and then I will see that okay Japan is the number one country developing new technologies with respect to robotics. So, which country is having more investment or more knowledge in a particular area accordingly country to country profiling can also be done with the help of patent landscaping. You can create a profiling of India. that what are the top 10 most technologies which are coming top 10 areas. Similarly, you can do for other countries also China, Japan.

So, country to country you can do that in this country these are the most important research areas. And then the second level of discussion we can do that I want to know in the area of robotics. So, in robotics which country is leading technology producer may be Japan is the leading technology producer followed by China followed by USA etc. So, this way we will be able to do geographical profiling also which is very important and in fact this type of profiling is done at the national level. So, that we can understand that what is the strategic direction in which the country is investing for its R&D efforts.

So, all those things are very easily possible with patent land escapings. So, that is a very important purpose of patent land escaping. You can see with the help of this simple diagram also the whatever we are discussing this diagram explains the importance of patent landscape analysis and same thing which we are trying to discuss that this example this figure is telling you the importance of patent analysis when an entity wishes to

launch their product in the market. So, it is purely from the commercial point of view that I am as an organization as a company if I want to introduce a product into the market this patent landscape landscape analysis will be very useful for me to know the IP status in a particular market. So, you are doing a making a product it is

Now, you are doing a patent landscaping. So, a company is willing to bring the product into the market. It will check the IP status that with respect to methodologies, with respect to assignees, with respect to technical disclosures. It will also check whether there is any case of IP infringement. If it is yes, purchase infringed patents, partnerships and in IP infringement if there is no

So, you have to pursue your patent, defensive publications, technical disclosures all these things are possible if there is no IP infringement. So, this is one way that you understand the entire dynamics of IP in the market where you are going to launch your particular product. So, the patent landscape report which we just discussed that it is highly customizable and softwares are available and these softwares are quite powerful in terms of making the report as per your requirement. So, these PLRs we call them as PLR patent landscape report these are known as PLR. So, these PLRs provide a good

bird's eye view of the patent situation of the specific technology. So, this PLR will give you this kind of complete pictorial view about the patent position either within a given country, within area, globally they can inform policy discussions, strategic research planning, technology transfer status and it may also be used to analyze the validity of patents based on data about their legal status whether they are live or dead etcetera. So, all these things are the part of your PLR. So, a good company which is operating in multiple countries certainly need to have a PLR whenever they are going to launch new products in new markets.

So, they see that whether they are infringing any IP. Or if IP infringement is not there, so how can they protect their IP? If they are infringing some IP, they need to purchase that IP so that they also become authorized user of. You see, it is very simple. I have a product.

Now, I am going to a particular country, a market. I have to check. It is my responsibility when I am going to a particular market whether I am infringing any IP or not. And that is possible when I have this PLR with me. Now, if it appears that I may infringe the IP of some other company because I am going into that market the best simple way is I should talk to that person who is owning the IP.

and should try to go for some kind of commercial negotiation may I may be I can purchase I can take technology transfer I can take the some kind of royalty arrangement. So, that the infringement should not be there I should be a proper legal user of that particular IP and this information is possible with proper patent landscape reports PLR. So, it is very important otherwise knowingly unknowingly on a ethical side I will say that unknowingly you may infringe IP of somebody else and then even if you have done it unknowingly you will be in trouble. because it is a case of IP infringement.

So, you need to avoid those kind of situations and therefore, these PLRs may be very useful at the individual level also company level and we just discussed that how these are more useful at the national level when you see the geographical profiling of IP with respect to technologies with respect to their strongholds in a particular area. the important you can say characteristics through which you can understand that it is a good PLR. So, a good PLR is able to help you in saving the time client time. It should be very specific so that the purpose of the client whether client is only interested in investment related decisions. that okay in which technological areas I should invest.

So, it requires a different kind of trend. If as a client I need that whether if I am going to introduce this product in a market there will be any case of IP infringement or not it is a different requirement. you should be able to create a report which is saving the time of your client the party for whom you are developing this report. Then certainly it is also very important that whatever reports we generate it should add value to the decision making process. There is some process which company is following

So, now this PLR let us say it is coming at the stage number 2. How it is able to help in improving the decisions at stage number 2? If it is not helping in improving the decisions I think the PLR has a question mark. So, the good PLR should help in adding the value in the decision making process. how will the user evaluate the effectiveness of the report.

The third important characteristic of a good PLR is that the way user is evaluating the usefulness of this report. So, the usefulness of the report in light of the purpose if it is able to save the client's time if it is able to improve the decision making abilities of the client then certainly user will find it more effective report. If it is not helping in reducing the time or improving the decision making ability. But it is important that

the KPS performance attributes which user is going to use for measuring the effectiveness those KPS are easily evident in your report. If those KPS are not available in your report then there will come a question mark on the quality of your report. as we

understand, we discussed that the patent landscape report is about the innovation policy related things. So, the policy discussions that is the one important objective behind PLRs and with respect to global efforts, national, regional, technological transfer licensing, R and D decision makings, these are important policy related discussions. which your PLR can facilitate.

Then, at the company level, at the organization level, competitors monitoring, technological monitoring, what type of mergers acquisitions, all these are, these are policy level issues and these are business issues. So, how your reports are helping in the policy and business level that is the important objective behind the PLRs. When we are doing this patent analytics and patent landscaping. In fact, this is a very upcoming growing area where we need a lot of experts, AI experts plus domain of IPR.

So, this is a good new area which is now taking some kind of momentum because of these enabling tools which are coming and at the same time now people are realizing understanding the role of IPR in improving their competitiveness. So, this entire IP analytics field is under development and we are expecting that in next few years there will be large number of experts. AI based tools for prior art. These tools help you in prior art search. There are AI based tool for drafting the patent.

There are AI based tool for response of examiners. How far these are accurate that time will tell. But the important thing is that the work has started in these directions which are considered to be entirely human activities. You need good IP understanding for writing a good prior art.

for drafting the patent applications, giving response to examiners query etc. But nowadays AI solutions are available and at the same time AI solutions are also helping in your preparation of PLRs for PLRs. All these are the uses of AI which are becoming popular in the field of IP landscaping and IP portfolio management. Here you see that the task which you are going to do with respect to patent analytics first is appropriate data cleanup because the one patent is possible as we discuss in the indexing class that one patent may be indexed in multiple locations. So, appropriate cleaning of the data, proper grouping of the data, generation of list,

proper clustering, proper classification and then geographical representation, network analysis, semantic analysis, all these are the different types of activities which are part of your preparation of PLRs. Now, what are the preparations? After understanding the steps, various processes, tasks associated with PLR, so what are the preparation for doing the

PLR? So, for planning for the production of a report you have to select a topic, identify collaborators and partners, define the scope, terms of reference and deciding how the work will be conducted. So, very general that in any case whenever you are doing a project activity all these are the elementary steps which are also part of this PLR.

Then the important thing is you have to perform the search. In this presentation, in this session, we are going to see some of the important type of searches and their important outcome. Let me just go to that. This is the outcome of one important search we did on hydrogen fuel cells for electric vehicles patent landscaping.

This is one very popular area these days lot of issues are happening, lot of agenda is there to promote electric vehicles. Now, electric vehicles require batteries. For replacing those batteries, now scientists are working to have hydrogen fuel cells which can replace the conventional batteries which we are using in the electric vehicles. Now, it is the outcome of this patent landscape.

Here you can see The companies which are having patent families like Toyota Group, Hyundai, Kia, Bosch, Audi, Grove Hydrogen Automobiles, Honda, you can see all these companies which are having patents related to hydrogen fuel cell. And in this also, using these different color coding, you have also specified the type of organization. who are material manufacturers, who are academic entities, who are vehicle manufacturers. So, for example, you see yellow colour, they are the vehicle manufacturers.

So, vehicle Toyota, Hyundai and then Audi etc., all these are vehicle manufacturers. If you see academic entity, so the academic entity is represented by grey colour. And here this is the first academic entity which is having Dalian Institute of Chemical Sciences. Then the second is Tongji University. So, you can see that if we want to see which university in the world is doing fantastic research.

or the leading researcher in the field of hydrogen fuel cells for electric vehicles, this simple example is good enough to understand that, okay, Dalian institute is number one with the highest number of IP in this field. You can see out of that now, there are different types of entities, material manufacturer, fuel cell manufacturers, etcetera, etcetera. So, if I take only first two, material manufacturers and fuel cell manufacturers. You see that this is the landscape of all those organizations which are part of this activity.

And then also in this you see there are electrode and electrode material. In this you have around 1990 patent families. Similarly, you have collectors, separators and

interconnectors where you have 1980 part families. Catalyst which is having 3170 part families and similarly, in the electrolytes you have around 4000 plus patent families.

So, there are different categories of electrolytes. cell materials and components and in each of that you can easily understand that the most important researched area in this is electrolytes. Because it has maximum number of patent families while the second most is catalyst where you have around 3000 plus patent families. So, in this way you can see that you get another idea that which is the most hot area out of all the cell material and components.

You can have you see as I said in the beginning that once you have the basic data you can play with that data the way you want. So, this is one simple graphical representation This is another representation where you have who are what are the different categories classification and who are the main patent applicants in all those different categories. Going further you can also see that over a period of time how the patent publications have evolved. So, from 2009 when you see that from 2009.

to 2012, 13, 14 these are just in single digit or two digits it is fluctuating. But from 2014 onwards there is a significant improvement in the number of this particular patent family. Geographical coverage you can see that Europe is leading however it is also correct that most of the applications in the case of Europe are pending. But if you see only the granted applications 103 are granted in USA which is the highest and second number is Europe, third is China.

So, you see that which country is the leading country with respect to hydrogen fuel cells that is another type of PLR report. the segmentation of patent portfolio is also possible. So, this is also part of your PLR report where you have what are the different types of fuel cells, their control systems, their systems and subsystems, their materials and components and their names are also written at the bottom of this particular diagram. So, this gives you a very broad complete overview of your I will recommend that you use some of these you can say patent landscaping on your own and you will find some very interesting results.

This is another example where we are using patent landscaping of biofuel. So, this biofuel is again a very interesting because now we are talking of biofuel. green fuel, green energy, sustainability. So, in this case that you can see that which are the countries having the maximum number of patent on the basis of geographical area. So, this is one where you are talking of USA and Latin America around 1628 patents are there.

Then you have China and Japan and these areas which is covering most of the Asia. Then it is around maximum 2424 and the other part is covering that is mostly the Europe is covering around 500. So, you can say that the maximum research in the case of biofuel is happening either in the Asian continent or in the American continent.

And this is also a very interesting diagram where you can get so many information by just having a look on this particular reports. This is with respect to geographical areas. We were saying that countries have like in case of biofuel India is holding around 472 patents and so on you can see from different areas. So, we have taken this report from the popular company that is Questel.

This is another way of putting your patent with respect to companies that these are the companies as well as important universities, educational institutions and what is the percentage of granted patents out of the total filed. So, that is another interesting you can see that how in these countries over a period of time or over a period of countries as well as companies the patent numbers have increased. So, with this we understood that patent landscaping report is a very useful way of understanding the entire dynamics of IP portfolios at the national level. at the company level, it can be used by the competitors also, it can be used for policy picking also, it can be used for the business purpose also.

And in fact, I will say that it can be used for by the academia also for their new R&D directions. It will help you in understanding what is a sun rising industry and what is a declining industry on the basis of IEPs created in that particular area. So, with this we come to end of this particular session. Thank you very much.