

# **INTELLECTUAL PROPERTY PORTFOLIO MANAGEMENT**

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**Lecture - 20**

Welcome friends, we are discussing about intellectual property portfolio management. And we have discussed that how we are going to create budget, how we are going to decide about the renewal of our IP. And then we also discussed how to generate revenue using different types of IP strategies. We discussed that you can use offensive, defensive, and transactional strategies. And then we also discussed depending on what assets you have in your IP portfolio, your strategies may change.

depending upon the business environment largely your IP strategy may change. Because, IP is all about commercial gains it is a very important source of revenue it gives you a competitive advantage and therefore, all these terms are very much related with the external environment with the external business environment particularly. So, therefore, in this particular session, we are going to discuss about a very important analysis which may be applicable in any field. But, today we are going to discuss this analysis in the field of IP portfolio that is strength, weakness, opportunity and threat analysis commonly known as SWOT analysis.

So, we are going to discuss the SWOT of IP portfolio. Now, first we will understand how SWOT is applicable to our IP portfolio, what is the meaning of strength of IP portfolio, what is the meaning of weakness of IP portfolio, what is the meaning of opportunities in IP portfolio and what is the meaning of threats in IP portfolio. And then we will see what are the various factors which are affecting the SWOT of your IP portfolio. And what type of analysis can you do in the case of an IP portfolio using this SWOT analysis?

So, that is the content of our this particular session. Now, SWOT is known for strengths, weaknesses, opportunities and threats. And this is a very good tool to monitor the strength of your IP portfolio. You should know where you are strong. and where you are

weak, what opportunities are there from the environment and what are the possible challenges which may be there in the business for you.

And this SWOT analysis is a very important analysis not only to project your strength in the market but also what actions you need to take to convert your weaknesses into your strengths. or at least to neutralize your weaknesses. Otherwise, your weaknesses may become an important challenge one day, and every opponent and every competitor will try to exploit you on your weaknesses. So, ideally, over a period of time, weaknesses should become strengths, but even if you are not able to convert your weaknesses into strengths, at least you can minimize your weaknesses, you can reduce your weaknesses that is the important purpose of this SWOT analysis.

Now, SWOT analysis takes care of both internal factors and external factors. In subsequent slides, we will see that what are the different types of internal factors and what are the different types of external factors and what internal factors are affecting in strength and weaknesses and what external factors are affecting in opportunities and threats. So, when you are going to consider internal, external factors, there may be some positive, and there may be some negative. Same thing, there will be some positive, there will be some negative external factors.

Positive will give you strength and opportunities negative will give you weakness and threats. So, that is the discussion we will be continuously doing in this whole session that strengths, weaknesses, opportunities and threats. So, let us first discuss about the strengths. Now, strength is to assess the strong and safe point in your IP portfolio.

May be you are a market leader, and because of the market leader, you are the person, you are the organization that is driving the technology in that particular area, and maybe you become obsessed with your strength once upon a time. So, therefore, regular monitoring of SWOT is also very important that sometimes we are carried with our strengths, but there may come a competitor and if we do not identify his strengths also, probably so on one side, we need a SWOT of my own organization, but also I need to do a SWOT of many of my competitors, close competitors, how they are performing, what type of improvement they are doing over a period of time. So, SWOT is required for yourself as well as

for competitors also. So, you can see that what type of strengths are there, strong points are there. Weaknesses there may be some weak spots and loose kind of IP or you can say in fact, I can include the knowledge of your organization also in this IP portfolio at the

moment. There may be certain intellectual property which is properly protected and which may not be properly protected that is also part of your IP portfolio.

And knowledge which is not properly protected that may be a weak spot because somebody can let us say copy that somebody may use without your permission, and you will not be able to take any action. So, if your knowledge, if your IP is not properly protected, you have protected your IP in India, but you have not protected IP in USA or you have not protected IP in Japan or in China, then it may be a case of weaknesses of your IP portfolio that it is not properly protected wherever you have your possible markets. that is the weakness. Third important activity is opportunities.

Now, what type of opportunities do you have from your IP portfolio? Opportunities generally are possible in terms of generating revenues. You can find opportunities related to licensing, technology transfer, leasing, etc. Then opportunities are also possible. in terms of that some knowledge is there, but it is not properly protected.

So, opportunity of creating new knowledge, new IP, creating new IP. For example, at IIT Roorkee, when we started working on creating IP culture, we realized that there are large number of professors, researchers, they are doing their research, they are publishing papers, it is part of our IP portfolio, but it is a weakness also because when you are publishing your paper your knowledge is now available everywhere without any protection. So, it created an opportunity for us that when we are creating so much new knowledge, we can use that opportunity to create new IP, and we started the culture of patenting. So, now,

When you are seeing that from the point of view of income generation that is one aspect of opportunity and from the aspect of creating new IP assets that is another opportunity. And then the fourth is the threat in SWOT. Now, there are multiple types of threats. For example, in your IP portfolio, you have trade secrets. Now, maintaining the secret of trade secrets.

itself is a threat that what type of mechanism you are going to have in your organization and you always be worried that somebody may leak my trade secret it may be known to others also then how will I protect my knowledge. There is a continuous challenge with almost all organizations in this world that issues related to fake products. counterfeit products where lot of trademark copying is happening. Patented products are also being copied by various organizations, and in the copyright field, digital piracy is a big threat. You are developing content and then the content is coming in the digital piracy mode also

a lot of awareness activities are happening and you need to see that if these types of threats are there

how to create a better security mechanism for my IP portfolio. And threats are also there that if I am doing less expenditure on my R&D activities, it is quite possible that my competitors do better R&D activities. They understand the importance of IP better than me and therefore, threats may come that my portfolio is a weaker portfolio and that itself is a big threat that I have only 4-5 patents or 4-5 IP assets in my portfolio and my competitors have hundreds of patents, hundreds of IP assets in their portfolio. So, the weakness of size itself is an important threat to the IP portfolio. SWOT, We got a basic idea of how this SWOT is applicable to the IP portfolio.

Now, let us see that this is the journey from idea stage to the launch of your product the entire innovation journey. Now, in this entire innovation journey the people say that we need to do this SWOT analysis not once, but at multiple stages. So, that when you are at this stage when you are at this stage keep doing SWOT analysis because when you identify your weaknesses and possible threats you are better prepare yourself to remove the weaknesses and to take care of you create some shield for neutralizing the threats. So, in that way, there is a direct application of SWOT analysis. during your innovation journey through this diagram, you can easily understand this point.

Now, in this simple SWOT analysis matrix, now we have all SWOT at one place, SWOT. As we discussed in the first slide, you can understand that your strengths and weaknesses come from your internal factors. Your opportunities and threats are coming because of your external factors. And if internal factors there are some good activities it will give to strength.

If external factors and good factors align, it will give you opportunities. Bad factors you say, like positive and negative, what we discussed in the first slide. Now, after regular activities once you understand that these are my weaknesses these are my threats what we try to do over a period of time we try to convert weaknesses into strength or we try to reduce the weaknesses. So, first stage is this and second stage is converting the weaknesses into the strength and when you are able to convert the weaknesses into strength your threats become

So, this is a very simple you can say improvement exercise also. If you have on a piece of paper your SWOT analysis and it is always requested that we do this SWOT analysis on a paper. If you do this SWOT analysis just mentally you will not be able to use the SWOT

for your improvement. for better preparation and we do SWOT for improvement. So, both these things are only possible when you make a paper like this: make four quadrants, and in each quadrant, you write some bullet points with respect to your strengths, weaknesses, opportunities and threats like this in the diagram, and then you will be able to use it for your improvement activity.

Now, let us see What are those internal factors? We just saw that internal and external factors are the reasons for strengths, weaknesses, opportunities and threats, respectively. So, what are the internal factors that lead to strengths and weaknesses? These factors can be human resources.

You have trained manpower, good volunteers, and supportive board members. then it is a positive human resource. It will add to your strengths and improvements. Physical resources, you are at a remote location, or you are at an accessible location. What type of your buildings are there?

Whether buildings have enough research facilities or not? These things are again positive and negative. Internal factors related to the availability of funds, grants, the support of funding agencies and other sources of income etc. If you have funds, that is your strength; if you do not have enough funds, that is a weakness.

Activities and processes, whether you have proper systems in your organization or not, and whether you have proper transparency in your system or not that, is the processes. If you do not have transparency If you do not have a proper IP policy, if you do not have a proper technology transfer policy, you cannot have good IP portfolio management. So, all these policies and processes are in place or not in place will give you positive or negative. If you have past experience of a similar kind of technology transfer or maintenance of your IP portfolio, it is a positive internal factor.

but if you are a novice, if you are learning, it may not be negative, but it is not even positive also. So, these are the various types of internal factors which may decide your strengths and weaknesses. Similarly, various types of external factors will result in opportunities and threats. And these are like future trends in the field of art, culture and even in technology also.

What type of new trends are coming in technology, culture, etc? If these trends are favourable, it is an opportunity. If these trends are not favourable to you, it is a threat to

you. How the local economy, national economy, and international economy is doing? If economy is growing,

It is an opportunity. If there is a decline, there is a depression, there is some kind of negative growth in the economy, then it is a threat. Sometimes the national economy is more important. Sometimes the international economy is more important. If you are, for example, a more export-oriented organization.

then probably, the national economy will not play that much of a role or the local economy will not play that much of a role, but the international economy will play a more important role. For example, if I am in the field of oil and gas and as we all know there are lot of conflicts which are happening in Middle East and Western Asia and in Russia and Ukraine etc. So, if I am in that industry I will have more threats than the opportunity. Then, funding resources come from various grant agencies, donors and other foundations.

So, if you have funding resources in that area, that is an opportunity and if funding sources are dried, that is a threat from where the money will come for doing more R and D or more IP portfolio management. Now, in societies in any country, the composition of demography is changing, and the average age is increasing and decreasing. We know that people keep saying that there are various countries where the average age is continuously increasing. So, you do not have new consumers. You have an ageing population, in the case of a country like India. where we say that average age is going to remain this much for next 5 years, which is we are youngest nation in the world. So, how the demographic is changing, how gender composition is changing, and many other things like education level are changing in society are demographic-related things that may be favourable and may not be favourable.

Then legislation, because it is quite possible in some technological areas, you may have favourable legislations which are coming. For example, in IC engines versus electric vehicles, the legislation favours India more towards the adoption of electric vehicles than conventional IC engine-based technologies. for solar energy versus energy coming from the thermal sector. So, if I am doing my R and D, which is more useful in the thermal sector, maybe legislation is a threat to me because legislation is supporting or the regulatory agencies are supporting more solar energy.

So, that is also a kind of an external environmental factor which may be positive or which may be negative or which may be neutral also sometime. So, even neutral, I am

considering it as negative if it is not going to benefit my business. Now, after understanding what is SWOT what types of factors are impacting my strengths and weaknesses and opportunities and threats, let us quickly discuss some interesting examples of strengths, weaknesses, opportunities and threats. Now, one type of these are just an example; you can always add more to this list. Like you have some very valuable know-how or trade secrets.

Whenever this trade secret comes, we always remember names like Coca-Cola. That is one of the strengths of their IP portfolio. The syrup that is used in making Coca-Cola is protected under trade secrets. So, that is their IP strength, and because of this, Coca-Cola is Coca-Cola. difficult to replicate products like complex software that is also a type of IP strength.

The IP is so complicated that it is very difficult to reproduce a similar kind of product, and if your IP is very complicated, it is also a type of strength because automatically, it is difficult for others to copy that. Strong branding and brand liability and many organizations which are enjoying the strength of their brand, that comes under this strong branding. You are a market leader, as we discussed in our other sessions, with examples of Apple, Qualcomm, Texas Instruments, etc. They are market leaders in their categories.

So, that is also a type of IP strength that I am a market leader. So, I enjoy the strength. You have gone for global protection. So, you have eliminated, the risk of your IP exploitation in some market or any market because of your global protection.

So, all these are the different types of strengths. Let us see different types of weaknesses. Then, for your product, you depend on some of your suppliers, which are holding some critical IP for your product. This is a big weakness and many of the world's top companies are suffering from this type of weakness. that I have a product but there are some very critical components which are outsourced from some vendors and they are holding the IP.

So, I will always be dependent on that, and then my effort should be to develop those technologies in-house so that I can reduce my dependence on those external parties. For example, if I consider the Indian defence sector In the Indian defence sector, we used to import a large number of components, arms, and ammunition from various countries. Now, there is a call from the government of India's prime minister that we need to become self-reliant in the defence sector also. And for that purpose, the most important thing is IP generation by researchers in the defence sector.

Only then you can start manufacturing those things in house. Otherwise, we are always dependent. We are always dependent on third parties to fulfilling our nation's defence requirements. So, you can understand that many times, dependencies become critical weaknesses. Weak brand recognition, limited R&D activities because you do not have the budget, or you are not giving priority to that area.

technology follower, you are not developing the technology. In some other countries, some other companies are developing the technology, and you just simply adopt that technology. That is also a weakness of your IP portfolio that you do not own knowledge which is there in your IP portfolio. Limited or no patent protection is obviously coming because of the lack of R&D activities in your organization. products can be easily reverse engineered and copied. Like when I was talking of strength, I was saying that the complexity of the product creates the strength that it is difficult to copy your product.

Similarly, the weakness is if it is, it can be easily reverse-engineered, and then somebody can easily manufacture it. Lack of production outside and there may be only domestic protection available, but you do not have foreign protection that is also a weakness of your IP portfolio. What are the opportunities possible? Like enhancing IP protection of new or key products that is one opportunity for you can add more and more IP in your IP portfolio that is possible and in the same line

You can also protect your IP outside the country. Go for global IP protection. You can create opportunities for IP trading. If you have a very good IP portfolio, you can find opportunities to trade with others and improve IP terms in contractor agreements. Because now, because of your strength and you see that IP can be a good source of revenue, you can be in a driving stage in any kind of MOU.

then you can always add new developments to your IP portfolio. And you can do lot of other type of IP into your IP portfolio. For example, copyrights, trademarks, designs, etc. Not just focusing on patents. What types of IP threats are also there?

Obviously, a patent infringement is one type of threat. And many a time, it can be explicit that you know about this, but many a time, it may be a hidden kind of patent infringement. You are not aware because there may be a competitor who is not on your radar, you are a small-medium organization, or you are an educational institute. Some multinational companies have started using your technology in their products or processes and many times if somebody is using something in the process

Because it is all internal to the organization, you may not even be knowing that your patent is influenced there. Like copying key products, we know how various sports products, for example, Casco rackets, are copied so much in almost all cities. The key employee dependencies that is also a very important thread. There may be some key employees in your organization who own that IP, and I have seen it is not appropriate to take the name in the lecture, but I know that there are companies where I know what is the drawing of this particular engine. I know the drawing of this particular antenna design.

And I left that organization, and joined some other organization. Because I was driving the entire IP in Organization A, now I became part of Organization B. Now I have given the same drawing to Organization B, and now the organization B has started making money using the knowledge of organization A. So, when you are too dependent on your few employees and when they leave your organization and join the competitor, that is also an important IP threat. So, if you want to maintain a good IP portfolio, you also need to have appropriate HR policies. So, that is how to take care of such types of scenarios when people leave your organization and join your competitor's organization. And sometimes undocumented ownership.

So, you need to have proper documented ownership. If there is some kind of intellectual property that is not properly documented, which is not properly registered. then that is also a big threat because you are inviting infringement of that type of IP. So, that is also a big challenge in our IP portfolio SWOT activity. So, these are different types of examples for strengths, weaknesses, opportunities and threats.

Now, we understand which activity to leverage, which to minimise, and which needs to be converted. to opportunities or strengths. So, here we have an example of one of the popular organizations globally that is Apple, and we need to do this type of SWOT analysis where you can see strengths, weaknesses, opportunities and threats on a piece of paper. You can make a chart paper, or you can take an A4-size paper. where strengths are also bulleted, weaknesses are also bulleted, opportunities are also bulleted and threats are also bulleted and then we will see that how we are going to convert these weaknesses into strengths and threats into opportunities.

So, I request all the participants that they should identify one organization of their choice and try to tabulate this type of SWOT analysis you can always take this as an example and then see that how you identify SWOT analysis and simple problem to start is you

may be working in some organization if you are a student of a college or university consider that as an organization and for example you are a student of IIT Roorkee do SWOT analysis of IIT Roorkee's IP portfolio Similarly, if you are working in any corporation, do a SWOT analysis of your organization, and that will help us understand and do this activity on a practical basis. So, finally, we can conclude that SWOT analysis is a very important inward as well as outward-looking activity. From inward, you are looking for strengths and weaknesses, and from outward, you are looking for opportunities and threats.

And as I already said, SWOT is It should not be limited to your own organization, but you should also go to see your competitor's organizations so that accordingly you are always ready to face new challenges, new threats, and new opportunities when you have an eye on what others are also doing. With this, we come to the end of this video. Thank you very much.