

INTELLECTUAL PROPERTY PORTFOLIO MANAGEMENT

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Welcome friends, we are discussing the management of our IP portfolio. and in the series of different types of issues which we are highlighting about the management of our IP portfolio. Today in this session we are going to discuss about another very important concept that is once you have IPs in your portfolio you have to use them you need to create value out of those IPs. Now there are different ways through which you can create value In various other videos sessions, we saw that value can be created by technology transfer, value can be created by royalty licensing those systems.

But value can also be created rather this is the most important way of value creation. When we incubate our IP, when we take our IP for creating some kind of products. That is the best value we can create from our IP portfolio. Particularly, this particular discussion is more important where the practice of developing the IP into the product is not so common. I am trying to highlight the research institutions, R and D labs, educational institutions where they may have a big portfolio of IP.

but they are not developing products on the basis of these IP assets which they have. When I go to corporates, yes it is very obvious that whatever IP they are generating, it is basically for the purpose of some kind of new products, new process. So, there is a very inherent idea that it is going to give us some kind of value. But when we are coming to educational institutions, R and D labs, research institutions, they Probably, we need to see that the value which we are expecting from our IP is not so great.

You may have a bigger size IP portfolio, but the net value which you are generating from that portfolio may not be so significant. So, this therefore, this IP incubation is a very important issue which we are going to discuss in this particular session. The content of this particular session will be around. that how we are going to incubate our IP and the role of different types of funding activities in developing our IP into a product level. So,

there may be a seed phase, pre-seed phase also, the role of angel investors, role of venture capitalist, then how different stakeholders are involved.

in the process of IP incubation that also we will be discussing. We will take some important issues related to challenges of IP incubation. We will also study few case studies so that you can understand that what is the practical meaning significance process challenges in the journey of IP incubation. So, that all is the content of this particular session. So, to start the discussion

I think we all are very much familiar with this term incubation and particularly in this era of startups this term has become very popular that you are incubating. Incubating means you are supporting, you are providing some kind of external support maybe of any type. The support maybe in terms of guidance, support maybe in terms of some kind of infrastructure Support may be in terms of some kind of funds, support may be in terms of simply motivation. So, there can be different types of supports which are possible and that is known as incubation.

So, that you are strengthened enough to take care of the challenges of the external environment. There are many challenges in the external environment and maybe without this proper incubation activity you will not be able to face those challenges. So, IP incubation is also a similar kind of activity which is in the field of intellectual property development that is initiative to assist individuals, start-ups, organizations in managing, protecting and leveraging their intellectual property. So, if you simply see this definition of IP incubation, it looks like no difference than our IP management, but here the important thing is what type of incubation facility you are creating in your organization.

It may be the complete IP ecosystem which you are developing, how your labs are strengthened, how your registration system is strengthened, how your enforcement system is strengthened, how your tech transfer system is strengthened. All these are the different components which will be the part of your IP incubation activity. Now, many organizations, many individuals, many start-ups they may have promising technologies But they are suffering from a lack of early access to the capital investment which is necessary for converting these technologies into a successful product that means the commercialization of this technology.

So, this IP leading to in the most simple word I will say product development. Once your product is developed, then the role of marketing comes to make money out of this product. But from IP to product, it itself requires huge amount of investment. And that

investment is the reason if it is not available at the appropriate time, your technology, however good it may be, it may not be able to give you the right desirable outcome.

So, generally it is a problem related to startups, but we have seen that this type of problem is there in educational institutions also, in research institutions also. Why it is a problem there? I am a faculty, I got a project and in that project I developed let us say three IPs. Out of these three IPs, their TRL levels are 3, 4, 3, 4, 4, 5. Now, these TRL level of 3, 4, 5 will not be able to get any commercial benefits.

So, you need to do further improvement. You need to enhance their TRLs so that it becomes between 7 to 9, 7 to 9, 7 to 9. Now if this TRL is not improved commercialization will not happen but who is going to fund for this TRL improvement that is the reason we are saying that because of lack of appropriate funding capital. these technologies which may be very promising technologies, very good technologies may not be able to give you any kind of commercial benefits. So, there comes a very specific role of some kind of investment which can boost the current TRL to a significant level of TRL or you can say when I am saying that TRL is improved, it is basically the IP incubation.

I have some intellectual property, I am incubating, I am providing some kind of support to that intellectual property and as a result of that it is moved from current 234 to 6789 where there is a better scope of commercialization. So, this is what we are expecting in this journey of IP incubation and as I just mentioned that since the responsibility of the earlier project was to develop some technology. So, the funding agency which may be any government funding agency, any private funding agency, they are happy that we funded a project and it resulted into these IPs. That is the fact at the moment in all R&D projects that we remain satisfied, we remain contented that the project is resulting in these IP creation. Whether that IP is commercialized or not, whether it is giving some value or not, that unfortunately is not the, in variety of cases, in most of the cases is not the concern.

And then this is the issue that we are now expecting some kind of external funds financing. This external financing is needed to solve this problem. And these external financing may be in terms of angels, may be in terms of venture capitalists, So, we popularly call them as VCs. So, angels, VCs will be available to us who will help us in giving the appropriate external funding so that we can improve the TRL of this technology, we can incubate these IPs in our ecosystem.

So, there are different types of challenges because when the technology is in the very early stage 2, 3, 4 level. you have lot of you can say clouds around that technology. You do not know how this technology will be actually working very well. Like there are issues about electric vehicles that is one upcoming technology. We want to use it because generally we believe that use of EV will solve the problem of environmental pollution.

Vehicular emissions will reduce if we use more and more EV. But at the same time we are also getting studies where we see that you may reduce the point emissions of carbon in the environment. Because when you are driving EV there is no emission so point emission is reduced but maybe because of the recycling of battery the kind of hazard battery is going to create and for charging the battery you are again using lot of fossil fuel. So, if you are if you see the life cycle result of that use of battery maybe it is not so environmental friendly as it is projected.

So, therefore, whether investing on EV is a good idea or not a good idea it may result into losses because maybe tomorrow you will have hydrogen fuel that will be a much better option maybe. Maybe tomorrow you will find a better biofuel which is environmentally sustainable also as well as low cost also. So, what I am trying to say that when you are investing in IP incubation, it is a risky proposition also because unless until you have a proven record of a technology how will you ensure that as an investor I am going to get enough ROI on my investments.

So, therefore, if I divide the entire IP incubation process there are different phases in this IP incubation process. So, there is a phase which is known as seed phase when you have Rather, we can also think of one pre-seed phase when those R&D institutions, those bodies which are giving you the project funding so that you can develop a technology which is at TRL 1, 2, 3. So, that is a pre-seed phase where there is no existence of such technology. somebody has given you a fund on your proposal.

So, I consider that as the first level of funding in my IP incubation. I submitted a proposal and in that proposal I am conceptualizing that I will be working on these things and maybe some IP will be generated as a result of this. So, there will be a pre-seed phase. After pre-seed phase there comes seed phase where you are giving some kind of funding in the 2 to 3 years duration that is depending upon technology to technology.

If it is a let us say software related technology, it may be even less than 24 months. If it is a hardware related technology, it may be even more than 3 years. So, when you are actually the seed phase and pre-seed phase both these are developmental phases where

there is no commercialization happening at this time. So, therefore, during this phase there is no expectation of revenue.

We do not expect any revenue during this particular seed phase. During this phase, we are expecting that some sort of IP, even if it is not a properly registered IP, but the know-how is developed. In one of our videos, we discussed that know-how is also a type of IP. So, various know-hows can also make your IP portfolio. However, it is also true that a portfolio which is only based on know-how may not be a very strong portfolio from the legal point of view.

And during this particular phase, I am not very sure that what will be my source of revenue whether I will be making product on my own or whether I will be doing a technology transfer, I will be licensing, I will be doing the leasing of the technology, I am not very sure. So, I do not know what will be the source of revenue for me in this particular phase. Developing that knowledge, developing that know-how, that technology, that is more important during this initial phases. I am more into developmental activities rather collecting revenue on my new IP creations. Then comes the role of venture capital.

Venture capital VCs who come after the angels were there. So, this particular phase, the seed phase, when you are in a very confusion state there is no clarity a lot of clouds are there at this time there are role of angels. Angels are there who will take higher risk when clarity is less more clouds are there foggy environment is there. So, to support at this time

Angels are available and angels will help you in giving grants, funds, etc. Maybe once you become a successful company, your technology becomes mature, angels will ask their share in that also. But they are ready to take higher risk. Because you do not have other investors at this time, you are absolutely in dire need of investments, your clarity is also low. So, therefore, angels are there who are ready to help you, but taking slightly higher risk.

Lack of clarity and this lack of clarity leads to this higher risk, sorry. But if it becomes a successful activity, it is more gain also. Angels generally take more risk, but their rewards are also higher if in case the technologies, startups become successful. After the angels role comes the VCs, venture capitalists. So, they are actually helping you

in improving the technology from stage 3, 4 to stage 7, 8. So, you can understand TRL 1 to TRL 2, 3 you have 2, 3, 4 let us say it is the role of engine and from here 2, 3, 4 to 8, 9

this is the role of PVC. Because now clarity has come. Because of the angel's money, now you are doing more experiments, you are refining your technology, you are developing your technology, so more clarity is there. Please understand one very important thing here.

IP incubation does not mean creating new knowledge. IP incubation means that the knowledge which we have, IP which we have, technologies which we have, how we are developing that technology for making its commercial uses. So, we are not talking of developing new ideas in this particular session. Otherwise, in our other sessions, we discussed that how we are going to develop new ideas.

But, here we are not developing new ideas, we are having some idea that means some technology, we are just improving the TRL level. Now, there are interesting things also, which is important to know when we are talking of IP incubation. TRL is a concept which is available to all of us from NASA that is technology readiness level. How mature is your technology whether your technology is incubated or not that is the level of TRL.

Now, with TRL there is one more concept comes that is MRL manufacturing readiness level. Technology is developed but I may not have the facilities plant machines to make commercial applications products using this technology. So, it means the manufacturing readiness is not there. So, you need to see that if I am making if I want to make this kind of pointer. this technology I understand but do we have the capabilities for converting this technology into a realized or a tangible products or not.

So, up to what level you are able to manufacture that particular product whether this product can be manufactured or not manufactured that is manufacturing readiness level. And on the basis of TRL and MRL there comes one more you can say readiness level that is known as IRL investment readiness level. So, if I go back to my previous slide you see that when I am in the pre-seed phase or seed my investment readiness level is very low because of no clarity what type of process you are going to follow technology is also not very up to the mark developed.

So, your IRL is basically when I am talking of fundings incubations related to technology and IP it is more appropriate to talk of IRL investment readiness level. So, when investment readiness level is low at that time Those who are supporting you, funding you, they are known as angel investors. And because of the angel investors role, now you will be improving the TRL and it will be now a investable proposal, investable technology

from a VC's point of view. Because you have improved the IRL, so you can consider it as a TRL movement also.

You can consider this as IRL movement also. And same thing those who are helping you in improving the IRL they can again be classified as angel investors or venture capitalists. So, even if I see from the venture capitalist point of view, if I am investing in a particular technology, I may wait for 3 years, 4 years and I will see that if I want to leave this particular company, this particular technology after 4 years, whether sufficient gains will be available to me or not. I have some rough calculation of gains that okay in next 3 years, I should get this much money from this technology. And accordingly, accordingly I will decide what should be the appropriate time of exit for me from this particular technology.

So, TRL, MRL, IRL these are the different types of criteria which are possible for angel investors as well as for venture capitalists. Now, going further we also like to introduce you one very important concept that is known patent value funds. Now, we discussed about moving from pre-seed to seed phase. Now, when we are moving from pre-seed to seed phase the funds which are generally used are known as PVF patent value funds.

Now, what happens in this patent value fund which is a kind of a special purpose vehicle special purpose entity. In our case, for example, let me give you a real life example. One of the faculty developed a product which is basically a medical kit. It is a medical diagnostic kit particularly. Now, they wanted to commercialize this medical diagnostic kit, but since we are IIT, we

We are not a medical college. So, we did not have enough data for actually getting this certificate for medical diagnostic. So, we were quite concerned. Then, all of a sudden, we got information or you can say somebody approached us from a very large corporate house. It is not very appropriate to tell name of that corporate house at this moment.

And they gave their interest, they highlighted their interest in this diagnostic kit technology. But we said that it is not Medical Council of India approved diagnostic kit. So, we need to get proper certification before we transfer it to any X party. So, they said no, no, no you do not worry for that. We are going to incubate your technology.

The term they use we are going to incubate your technology. what they will do? They will use this diagnostic kit, they will make a kind of agreement with us, they made a agreement with us, they use this diagnostic kit in their hospital and based on the

development, based on the results of use of this diagnostic kit in the hospital, they are going to apply for proper MCI approval. Medical Council of India's approval and then the process of manufacturing and distribution will start. So, that is how for doing this entire work, the hospital work, MCI work etcetera, this is possible the company started using its patent value fund.

because there was already a special purpose in this organization that for incubating a particular technology you can create this particular channel and through that particular channel the technology is under the development stage. May be if technology is developed then there will come VC also who will try to raise more funds for this particular hospital or this particular company so that faster commercialization or the commercialization at a mass scale is possible. So, PVF is a very important issue in the management of our IP incubation activities because then only you will come to know that how this idea of IP incubation is going to help the organizations. It is particularly very important for the startups.

Because the established organizations, multinational organizations, they have a full facility available. There is no resource crunch. And if there is no resource crunch, these issues related to incubation of the technology, developing the technology for the commercial benefit, becomes more important either for the category we discussed educational institute and other kind of R and D labs and on the other hand for the startups also. So, startups already takes benefit of their IP portfolio, but if startups they also understand that there is a possibility of incubating our technologies.

So, it will be very very useful for them to let us say secure investments, secure other kind of protections, secure good kind of collaboration also. Because if you are having a developed technologies with you, if you know that Israel is a very small country, but it has a very strong portfolio of different type of war related technologies. which are required by defence forces of every country. So, even if it is a small country every other country wants to have a friendship with country like Israel.

So, for startups, if you have a proper IP portfolio which is properly incubated, which has demonstrated its utility to the world, then probably it will be very very important for startups, for collaborations, for getting the fundings, for getting other kind of benefits. And in this journey, There are certain challenges also for startups for doing the proper IP incubation. That challenges are you have so many IP in your portfolio. Now, all IPs cannot be incubated simultaneously.

So, you have to understand your landscape not only your landscape but the competitors profiling also is very important. So, that you can understand which IP to incubate which IP not to include incubate because if you put your resources put your money investment on wrong IPs for incubation the results will be not in your interest. Funding and resources, that is a big challenge. You need to prepare a pitch deck. You need to always present that pitch deck in front of the investors.

So, that sometime may become quite frustrating also. Legal regulatory compliances also are very important. That is, you also need to see the rules of giving loans as well as the regulatory requirement with respect to your funds. IP incubation these are also important challenges. You can only incubate when you have proper collaboration and partnerships.

So, that is also very important and commercialization and market entry because successfully bringing IP to market involves large number of steps particularly if you remember the concept of STP. segmentation, targeting and positioning. So, that is very very important even in case of IP portfolio. You have IP just because of this somebody gives you higher price, somebody gives you more orders may not be possible. So, you need to see that how IP is involving

in helping you in identifying the appropriate STP and that will sometime is a challenge because people are not able to understand the exact benefit of that IP and how it will be implemented in the market. These are the two case studies we are here. One is from company known as Ethereum. This is one case study and the second case study we are talking about Tesla's electric revolution. And both these case studies will give you the role of some kind of funding

during the process of technology development and which enabled these organizations to develop very successful innovative technologies. So, with this we understood that IP incubation is basically the development of technology or scaling the technology so that it becomes more valuable. You need to see that ultimately you have to realize the commercial interest from your IP. It may be, as I said in the beginning, it may be through licensing, it may be through technology transfer and so on. But it is also very easily possible through IP incubation, where the role of different types of funding agencies, who is angel investor, who is venture capitalist, etc., what is the role of special purpose entity, all that we discussed in this particular session.

Thank you very much.