

# **INTELLECTUAL PROPERTY PORTFOLIO MANAGEMENT**

**Professor Name : Prof. Rajat Agrawal**

**Department Name : Department of Interdisciplinary**

**Institute Name : IIT Roorkee**

**Week : 01**

**Lecture: 03**

Welcome friends, in our earlier sessions We discussed about fundamental meaning of various terms which are defining this particular course, what is intellectual, what is property, what is portfolio and what is management. In another session, we discussed different types of intellectual property rights. We discussed about patents, we discussed about copyrights, we discussed about trade bars, we discussed about design and GI. But all these intellectual properties

can only come into play when there is a innovation. Without innovation, intellectual property cannot be existed or the way we want to discuss innovation in the form of intellectual property portfolio management that is only starting when something new is happening. So, understanding of innovation is fundamental for discussions on intellectual property portfolio management. In this particular session, we are going to discuss what is innovation and how innovation is related to intellectual property. Innovation in its simplest word, in its simplest meaning is defined as doing something new that improves some products or creates new product, improves processes or make processes

which are more environmental friendly, which can reduce the cost, which can be more efficient or innovations are also possible these days where business models are created. You see that how companies like Google, Facebook and many other social media organizations are making money that is also innovation. So, innovation is possible. in different type of spheres and when you have innovation that can be protected using different types of intellectual property rights. Different IPRs we have already understood.

Now, innovation when we are trying to monetize them intellectual property right is a intermediary step. Now, one very popular economist Joseph Schumpeter, he is considered to be father of theories of innovation. I will not say father of innovation because since civilization, you can have time immemorial from that time innovations are there.

Development of fire, development of wheel, all these are some so important innovations without which it is impossible to imagine innovation.

the life which we are enjoying. But, Schumpeter tried to give a theory of innovation and he created the concept of creative destruction that we have to do something destructive so that a new thing can be created. Without demolishing the old thoughts, new things, new theories, new products will not be possible. So, creative destruction is one way to look the innovation that remove the old and create something new. The other thought which he gave that is new combinations.

I can use one umbrella, the umbrella which has light also because umbrella is required in let us say rainy season. when light is also not there. So, if I have an umbrella where some LED light is also there that is an example of new combinations. Large number of devices you use mobile phone which is a good example that how in a mobile phone we have combined camera also that is a separate product. We have combined music systems that is a separate product.

we have combined digital diary, we have combined book reader, so many different types of combinations we have created in this new product known as smart mobile. So, in present environment, we are using both these theories, theory of creative destruction as well as theory of new combination to propel the idea of innovation. When we are trying to define innovation, We use a very simple formula which is known as IQ formula and under this IQ formula you have three very important elements. These are new idea, the idea should be implementable and then it should also create impact.

There is a term which is now popular in English also though this is coming from North India Hindi term that is Jugaad. But Jugaad is not innovation because it is not scalable. It may have ability to solve a problem at a local level but when I say innovation it has to be scalable activity. So, getting a new idea. When that idea is possible to implement, it is not a theory only.

It has to be implemented either in lab or in the field. And when it is only available in the lab, this idea plus implementation, when it is only available in lab, this is invention. But when your invention becomes a source of wealth creation, that is known as innovation. And as in our other sessions also, we have discussed the same topic again and again that we are looking innovation as a very important source of wealth creation in this knowledge economy.

And that is only possible when our inventions become impactful, scalable, then the wealth will be possible. The concept of Schumpeter, it is related to three very important things. What are these? One is production of new goods, new quality of goods.

So, we just discussed the example of mobile phones that how we are able to create new and new and better and better mobile phones by following the concept of new combination. So, that new combination concept is helping us in getting new devices. Second is invention of new production methods. A lot of such inventions are happening in the field of medical science.

How we are continuously improving the process of surgery, That is an example of new production method. How continuously we are trying to reduce carbon emission in our manufacturing processes? How we are continuously trying to reduce the emission of hazardous elements in our manufacturing process? That all is invention of new production method.

I do not know how many of you visited facilities of cement production. If you go to cement production sites these days you can go wearing a white shirt and you can come without even a dot of sand or dust on your shirt. And you can remember about 20 years back if you go to a cement plant it was such of full of dust it was so difficult even to breath inside that plant people used to suffer lot of lungs diseases breathing diseases because of dusty environment inside the plant so lot of improvement inventions are happening with respect to production methods also so that is the second type of activities in which innovations are happening third important thing development of new markets there are many factors which are contributing to new market development some of you may argue

New markets may be developed because of better economic conditions in new markets. People have more purchasing power these days. People are more aware, therefore they want to purchase new products. But innovations are also giving scope of creating new markets. How?

By 5G rolling in our country India, we are creating a new market of telemedicine. So, you have innovation in the field of 5G, new type of products are coming and as a result of that now you have better connectivity in the remote areas and that is giving a new market of telemedicine. Now, many solutions will come for improving the quality of telemedicine. So, one day

innovation creates a new market and then new market will help in improving the quality of products, quality of services and new production processes also come for improving the efficiency of our outcome. So, in a way all these three things are interrelated also. Development of products, development of new processes and development of new markets. A lot of Startups are coming these days and you must have realized that most of these startups are coming in the area of mobile apps.

Students in colleges, they make new mobile apps and they are creating their companies around that mobile app. So, I can say this is a new market, that market of startups. And innovation in the field of digital technologies, in the field of internet, in the field of mobile, all these things are penetrating into this market of start-ups. So, you can think of many such examples that how innovations are creating new markets. We unfortunately had

this period of COVID and we lost many near and dear during that COVID. But during that COVID, we learned the art of virtual conference and a new market of Google Meet, Webex, Zoom is created because of this innovation of virtual conferences. So, innovations generally create huge amount of new markets and that is the reason people go into blue ocean discussions that you innovate create a new market where there is no competition and when you have no competition you will be getting the benefit of early mover first mover in that market. Now, after understanding this innovation what is the basics of innovation in a broader sense

you can follow this flowchart where you have a project idea because innovation I can discuss in two particular cases. One is random innovation and second is structured innovation. Now, when I am doing structured innovation which I want to do in my organization. because random innovations may be very good sometime, may be out of the world also, but I cannot rely completely only on this random innovations. I need to create environment of innovation in my organization.

Only when innovations will take place, I will be able to generate intellectual property and then IPPM will be possible. So, we want to create structured innovation in our organization. And therefore, this systematic process where you are starting with ideation stage, you need to do R and D. There may be some technological failures in that also. If you solve those technological problem, then you go to the lab level where you do implementation.

There will be some planned inventions, there may be some unplanned inventions. And finally, combining these planned and unplanned inventions, we go for scalable activities, impact out of this invention. So, up to here, you can say is the idea. From here to here, it is the state of implementation. And then finally, when we are talking of investments, production, marketing, these things, this is about creating impact from our innovation.

So, this is impact creation, scaling. So, that is how you can see innovation in a very broad sense from idea implementation to impact creation. I am talking of structured innovation in the organization. So, I have to do a system where proper idea management can take place. I can call it as idea management system, where how people will provide ideas, do I have a system to receive ideas from my employees, where I am storing them, how I am filtering

how I am supporting the ideas, all these things are the part of idea management system. Then, what type of support I am providing for implementing those ideas, whether I am giving them some monetary support, some space, some leave, all these are the part of implementation of the idea and then if idea is successful, if it is properly implemented, then for scaling that idea, whether I am providing some kind of seed fund, whether I am providing opportunity to make a company out of that idea or I am going to give some kind of share to my inventors for developing these ideas. All these things are part of proper structured environment for promoting innovation in my organization. So, after this, we understand what is the scope of innovation in my organization.

The scope of innovation is possible with these four P formula. In this four P formula, first important P is paradigm. Now, paradigm is innovation in thinking and approach. How are you thinking? Are you able to change your thought process or not?

So, paradigm can be from this part to this part. This is our traditional way of thinking. This is innovative way of thinking. In a normal situation, in a traditional situation, we all used to think earlier that A degree course can only be offered in a classroom environment, brick and mortar classrooms.

But now, in innovative way of thinking, now we are able to offer a degree, a full degree in online mode also. So, this is a paradigm shift. Now, many of us feel that for passing the examination, you have to appear in a written exam. You will get some grades, scores and then only you will be decided whether you got 60%, 70%, 90%, 99%. Exams are must.

Can we give you certificates? Can we give you passing certificates without these exams? Based on your performance in the classes, I am able to assess you or I may use technology where I put lot of sensors in the class. And I am able to map your brain during the class discussions. And with those signals, I am able to give you the grade.

No exam required. This requires innovative way of thinking. So, a paradigm related innovations are possible that how are we changing our thought process. That thought process change is the innovative way of thinking. Second is with respect to products.

Products, when I say we include physical products, goods as well as services, both we take care of physical goods as well as intangible goods which are known as services. Now, in this case, this is the most visible type of innovation. So, whenever we are talking of innovation, we generally limit ourselves to this product innovation because it is a visible type of innovation. You can easily see a new iPhone is coming to the market, new type of smart watch is coming to the market. So, we can very easily relate innovation with the products and services.

So, I hope we all can easily understand it. Innovation in processes, we just discussed that how reducing carbon dioxide reducing the emissions hazardous elements from the process all these are part of your process innovation. Process innovation is very close to this Japanese term which is known as Kaizen that means continuous improvement. So, lot of continuous improvement activities in fact, I will go one step ahead I can say that even in six sigma

We do lot of improvement in the operational processes and all that is another very important scope of innovation, process innovation. And fourth P is related to position related innovation. Now, position means innovation in positioning and marketing strategies. Whenever we are trying to go for a new market development. whenever I am trying to attract a new customer.

Now, for example, IITs and IIMs, we all used to offer only regular classroom programs. Now, we are all offering executive programs also. So, now, we are positioning ourself slightly different that, okay, we are having regular programs as well as executive programs. Because we are targeting a new customer, new market who is already working professional and we want to offer some courses to those working professionals. Similarly, many organizations, they are trying to target new customers because of business model innovations, because of additional stream of revenue and therefore, with respect to positioning also innovations are possible.

For example, if I say in context of India, our position was that India is a soft state. Now, all of a sudden we are changing our position that now India is no longer a soft state. We also know what is in our interest, what is in our benefit and we are able to hard for our interest. So, that is change in position related innovation.

So, these are four different P's on the basis of which you can identify the scope of innovations. Now, what are the important elements, pillars for making innovations in the organization? And these are like creativities and ideas. However, it is also true that creativity is not the starting step of innovation. The starting step of innovation is idea and the solution on those ideas may come from creativity.

Those who are creative, they are innovative people. I do not consider that as a correct statement. In fact, we need curiosity. for starting the process of innovation, curiosity and then after curiosity, creativity comes when we are looking solution for different types of challenges, problems. Another important element in the organization which we require, culture of innovation.

There is a term in Hindi which is known as Chalta Hai. Now, if you have this culture in your organization, you cannot innovate. Culture of innovation means people are not satisfied with status quo. There need to be a rebellion approach, then only innovation. So, rebellion you do not take in negative sense.

Rebellion I am saying in positive sense that if I am satisfied with everything around me, I will not innovate. I will always question how I can make it better? Why it is like so? And when I have this approach in my thought process, why is it so? How can I make it better?

Then only innovation will take place. So, people in my organization, they should know how to question things, how to question things positively so that innovations can take place. Required resources, infrastructure. Because that is also required different type of physical facilities may be needed for trying your ideas. Support is needed in terms of time, in terms of space, in terms of money also.

So, all those things are also important thing. But I think these are slightly low level requirements. Because providing physical space, providing monetary support can be done by anybody. Another very important you can say element is the leadership and vision because leadership and vision creates the culture of innovation without leadership without that vision culture of innovation will not be there. So, top leaders role or rather

top management involvement in this process of innovation is very important what type of vision they are giving that is needed

for developing the culture, for ensuring that innovations and a proper portfolio of innovation is being developed in your organization. Regular feedback. Innovation is not a linear process. It is an iterative process. So, what is the mechanism of feedback?

You cannot go in this straight line in the process of innovation. So, innovation is not a linear process, it is iterative process and it requires regular feedback to the innovators. So, do we have a proper system of feedback and once feedback is given, how quickly we are able to adapt to this feedback that also ensures success in terms of innovative organizations. there are always risk in the process of innovation. Many people feel that innovation is all about risk taking.

So, yes, to some extent innovation is about risk taking, but it is not a blind risk. You need to have a proper risk management system in your organization. For example, in most of the HEIs, higher education institutions, We have a system of incubators. That is one mechanism of risk management.

Innovator is sharing his risk or incubator is taking the risk of innovator. So, this is one possibility. Government of India is giving huge amount of support in terms of grant etc., to various incubators to various innovators through various schemes that is again examples of effective risk management. So, when you have proper risk management system more and more people are interested to start the process of innovation.

Otherwise as an individual I will always be fearful to go for those activities where the end result is not very certain. In innovation, there are two important challenges and those challenges like prediction disability and our failure fallacy. These are the two very important challenges which stop us not to do innovation, which helps us in keeping ourselves in our comfort zone. We do not do anything new. Because we do not see what will be the outcome of this innovation and therefore, these effective culture of innovation in the organization with the all these elements are very much required for promoting innovation in the organization.

Finally, we come to this discussion that how many different types of innovations are possible. In fact, there is no standard classification of innovation. types of innovation. There are different authors, different articles, different magazines, they classify innovations on their own. So, one such classification is presented in this slide where you

have very popular type of innovation because a type of innovation we also discuss under our 4P model where we discuss paradigm, product, process,

and positioning. So, similarly here also we have product innovation, process innovations, business model innovation where we are looking what are the new streams of revenue generation, how you are able to identify new streams of revenue generation. Some of the fantastic example like Google etcetera at this time or Meta YouTube, all these are the examples which have done fantastic business model innovations. Service innovation is related to product innovation itself.

So, this is one set of classification. The other set of classification is incremental innovation or disruptive innovation. Now, development of a mobile phone can be a disruptive innovation. But once a mobile phone was developed, now regularly we see that new models are coming in the mobile phone. All these are incremental innovation.

So, there is a process, some disruptive innovation happens and then slow improvement on that innovation takes place that is incremental innovation. That again a disruptive innovation will take place. IC engine based vehicles we were using since many decades, now we start using electric vehicle. So, this is an example of disruptive innovation, but now we are improving electric vehicle, how we can have better batteries, how we can have better management of batteries, How we can have other fast charging systems?

So, we are working on incremental innovation on those electric vehicles. Maybe after some time, we will have vehicles which may run from some other sources of power. So, that will become again an example of disruptive innovation. So, disruptive and incremental follow each other. Then, you can have open innovation.

Now, when we talk of open innovations, we will be talking them again in our one of the session. How you are going to manage your intellectual property portfolio? That becomes an important question in case of open innovations. Because open innovation where we are giving innovation for use to everybody. And in this case, that exclusivity will not be there.

So, we will see that also. Sustainable innovation, that is another word which is becoming popular these days and it can be described in multiple ways. If I say literal meaning of sustainable innovation, so innovation which can sustain for long period, that is one meaning of sustainable innovation. But the other popular meaning of sustainable

innovation these days, those innovations which are environmental friendly. So, people give that also as a meaning of sustainable innovation.

Then social innovation which is part of sustainable innovation because those innovations which are in the interest of society. So, generally only those innovations become impactful which are in the interest of the society. That is one understanding of social innovation or social innovation can also be understood That those innovations which are solving some of the social problems. For example, in a particular society, there is no awareness about education.

Children are not going to school. They are going for, let us say, rick picking or bagging. It is a social problem in some area. Now, how can I do some innovative solution which can attract more children to school? And here for example, I can put the mid day meal scheme that can be an example of social innovation.

So, that these children for the sake of lunch and breakfast come to school. So, that is social innovation. Digital innovation no need to explain this entire course which we are delivering this is an example of digital innovation. And in our country examples like UPI digital innovation.

Now, UHI revolution is also going to happen that is also digital innovation. Technological innovation is other way of putting whether this can be a digital innovation or non-digital innovation can all put under the technological innovation. And computing innovation we see that on one side you are talking of solutions like cloud computing. On the other side, you are talking of solutions like edge computing.

All these are the examples of computing innovation. Computing requires huge amount of energy. Computing requires huge amount of resources in terms of servers, money, time. So, there are innovations happening and companies like AWS etc., they are enjoying on their ability to do computing innovations.

So, this is one way which is very exhaustive way of classifying the innovation but as I there is no standard way of classification, no uniformly accepted system of classification of innovation. So, though we have used different types of innovation in explaining you, but the list is still not complete. You may always add more types of innovation for better understanding in this particular list. So, with this, we come to end of this particular session.

Thank you very much.