Intellectual Property
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Lecture – 26
Universities and Intellectual Property

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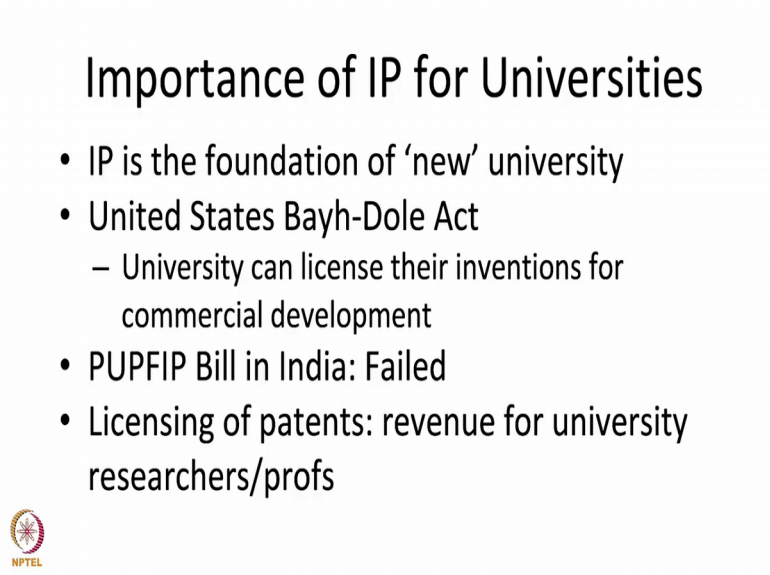

Universities and Intellectual Property: Today IP has become one of the important components of a modern universities. You can say that intellectual property is the foundation of the new university. Now, this happened because of a legislation the Bayh-Dole Act which was promulgated in the United States, which allowed universities to license their inventions for commercial development.

Now, before the Bayh-Dole Act came into force any university which was using public funds was not allow to patent because, it involved use of public funds. And, patenting with the use of public funds could be seen as privatizing technology which was created using public funds. Now, this act allowed universities to license their inventions and to commercially development. You should understand this scope of this act in the light of an age old exception that was there in patent laws.

Patent laws traditionally excluded any activity which was for instruction of their students or any research activity from the ambit of a patent infringement. So, whatever happened

within the universities or in the class rooms though it may fall within the ambit of an infringement was excluded because, that was necessary for teaching students.

So, the research or the instruction exception existed in the US law as well. But, this came more to ensure the products that are developed in the universities. The intellectual property rights that are created in the universities could be commercialized. In India we had a similar attempt there was a bill which was passed which covered the public funds used in developing intellectual property. It was called the PUPFIP bill, it stands for the Protection and Utilization of Public Funded Intellectual Property.

Now, this bill did not become an act, it failed because of certain controversy surrounding it. So, licensing of patents became a revenue for universities, but not just the universities, but also for the researchers and the professors. So, this is the background of the entrepreneurial university, the university donning the role of an entrepreneur.

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So, the new university where the creators of technological solutions and societies growing economic expectations came around the universities, universities were expected not to just perform their teaching function but also to ensure that they come up with new technologies and help the society. And, IP was used as a tool to harness new technology because in any area of new technology it is hard for people to invest unless there is some kind of protection. So, we see this in all technologies during the early stage of their life.

Be it software or biotechnology we see that initially there is a focus on IP in a new technology because, till then the rights have not crystallized in a way in, which people know how their investment can be recouped. So, in the initial age of any new industry you find that there is a focus on intellectual property so, that that brings investments. And, universities because they were doing focused research, they were also able to develop and disseminate information of the research and development that happened.

Universities also contributed in a way that the IP that protected the initial research could be developed into new products. Now, most of the time this happened because the university research was taken by a private player corporation or an institution which was insisted in commercializing it and took the technology to the market. So, universities with predominantly doing the role of doing the research, but the research that the university would do; the moment it comes within the purview something that commercial entity is interested.

Then the partnership between the commercial entity and the university would lead to some kind of licensing or even some kind of an entrepreneurship rule. Now, universities would largely commercialize their IP in two broad ways: one they could license the technology that is covered; they would they could license the patents. Or the professors and the research team could itself incubate a company which is what we call the entrepreneurial rule. So, they could be a technology that is developed could take a licensing route where in just the technology is licensed and royalties are earned.

Or they could be an entrepreneurial route, rather than licensing the technology to third parties that they form a small team and as a startup they incubate company and their company now tries to commercialize the technology. Now, all these became a part of the university function because, it was seen as a something that was done for the public good. So, teaching had a function that was directed towards the good of the public. Similarly, developing new technologies was also seeing as being in alignment with the function of a university to do public good.

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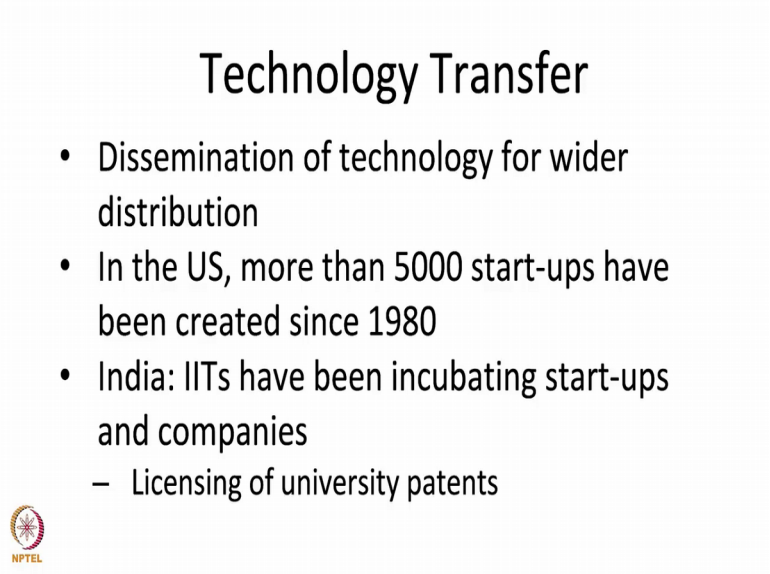

Now, universities also as I said where instrumental in transferring technology. So, dissemination of technology for a wider distribution happen through the universities. And in the US especially more than 5000 start-ups have been created since 1980, that is since the Bayh-Dole Act many startups have come through by using technology that was developed by the universities. In India, the IIT's have incubated start-ups and companies especially IIT Madras and IIT Bombay they have Research Park which has incubated companies.

And, the model that is being predominantly followed in India is the licensing of university patents. And, incubated companies if you look at the licensing there are few companies that have been incubated, but the predominant model appears to be that of licensing university patents.

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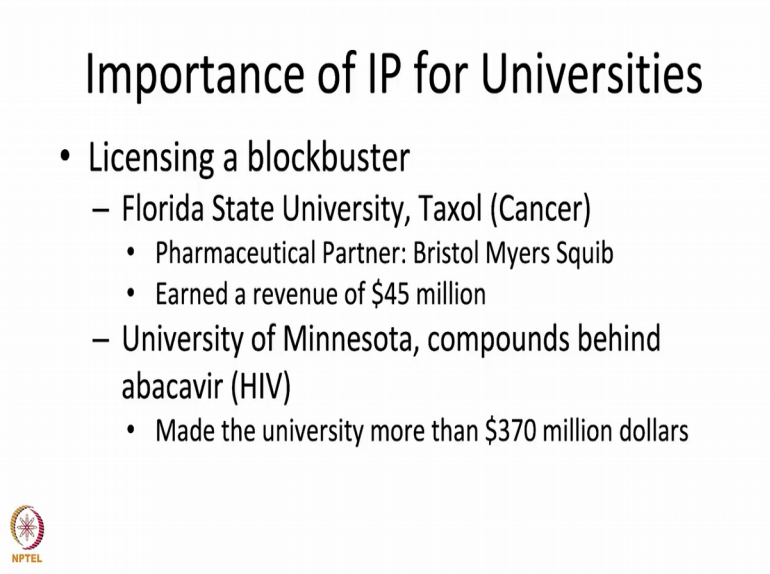

Now, what is the importance of IP for universities? There are cases where licensing of a blockbuster technology; we refer to a technology as a blockbuster technology if it earns revenues in millions. And, there are many instances in the United States, Florida State University was instrumental in coming up with the drug Taxol which is in cancer drug.

It partnered with Bristol Myers Squib which is pharmaceutical company and it earned revenues of around 45 million for their technology. The University of Minnesota was involved in developing compounds behind abacavir which is a HIV aids drug. And this made the university earn more than 370 million dollars.

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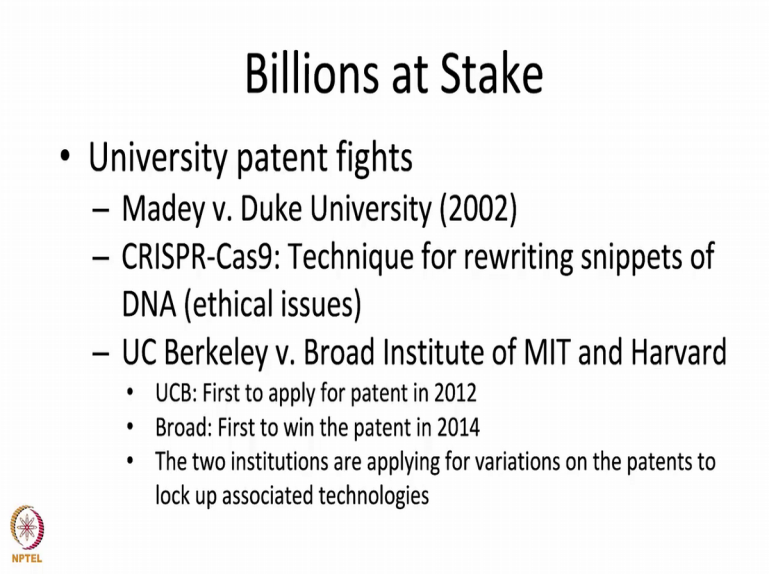

Now, we can see that because of the stakes involved universities are also likely to fight patent litigation. So, there are in various cases where universities have fought with companies, universities have fought with other universities. But, universities are also fought with their own employees and professors. One case which was the landmark case in the US involves Madey versus Duke University.

This decision came out in 2002, where Professor Madey was employed by Duke University and some disputes rose and there was an infringement suit filed by Madey against Duke University. Duke University pleaded research exception saying that its activities would amount to research and hence, it should not technically fall within patent infringement. Professor Madey on the other hand a list that Duke University was aggressive in commercializing their technology.

And hence, the research exception which is normally open for a university which would normally be used for instructing students should not be opened for a university that commercialize its technology. And, this was true for all the leading universities in the United States. So, the appellate court held that the research exception would not be open to Duke University because, of the fact that it commercializes the technology.

So, in India we still have a strong research exception, universities are allowed to do things that could technically amount to patent infringement; so far as they are instructing their students and it is done with research objectives not with commercial objectives. But

once university start commercializing the products of their research; it may be hard to draw a line between research used and commercialization as it happened in Madey versus Duke University. Now, recently we have the CRISPR-Cas9 technology, which was it technology used for rewriting snippets of DNA and what we commonly called gene editing.

Now, this has raised quite a lot of ethical issues more than technology based issues saying that what could be the outcome the cost involved in editing genetic material. Because, most of the time that technique is used at the embryonic stage and researchers are not able to predict what could be the ultimate consequence of these editing. So, there are some ethical issues involved as well and we also have a case where, UC Berkeley had a case against Broad Institute of MIT and Harvard. UCB had filed a patent in 2012 and the Broad Institute was the first to win the patent in 2014.

This was on an overlapping technology where, the two institutions where applying for variations on patents to lock up associated technology. So, you find different types of disputes and especially when the stakes go higher, it is likely that you would see the entrepreneurial university would also go towards patent litigation.

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Now, there are many instances of taking the research from the lab to the market. And, some of these are being done very professionally by professors who have been instrumental from taking the research from the labs to create great companies. Herbert

Boyer a professor from University of California co-founded the company Genentech which is one of the leading pharmaceutical companies, which involved in biotechnology today. They developed the synthetic human insulin in 1978 and the company itself was acquired by Hoffmann La Roche in 2009.

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In India this is an example that I am aware of Dr. P. Venkat Rangan who is a leading academic and who is also an alumni of IIT Madras founded the company called Yodlee Inc, an American software company and which was the commercial success.

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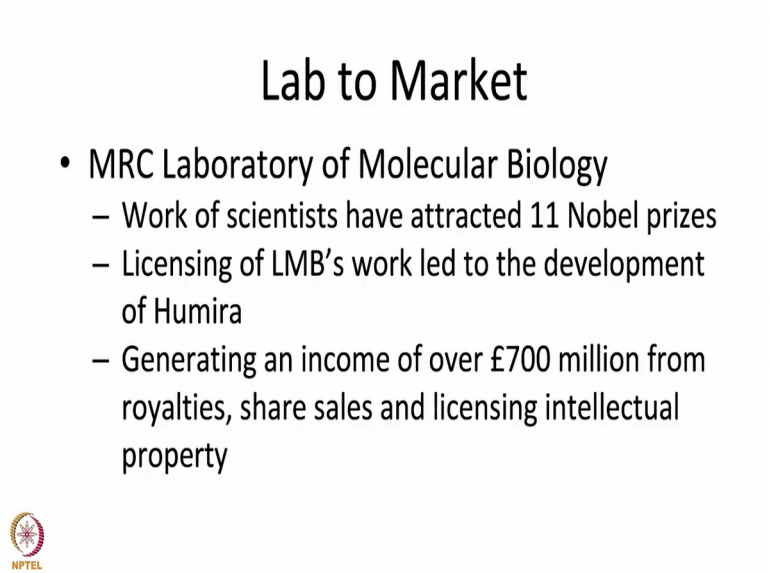

The MRC Laboratory of Molecular Biology which is in the University of Cambridge, the work of the scientist have attracted 11 Nobel prizes. The licensing of LMB's work led to the development of Humira. Humira is a biologic and it is the world's largest selling drug which is used for autoimmune diseases.

Now, this has generated an income in excess of 700 million pounds from royalties, share sales and licensing intellectual property. So, you can see how important this is just a glimpse of how intellectual property developed by universities has been perceived in the market.