Sociology and Resource Management
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Module - 02
Community control of natural and man-made resources
Lecture - 09
The internet, Open-source, and the commons

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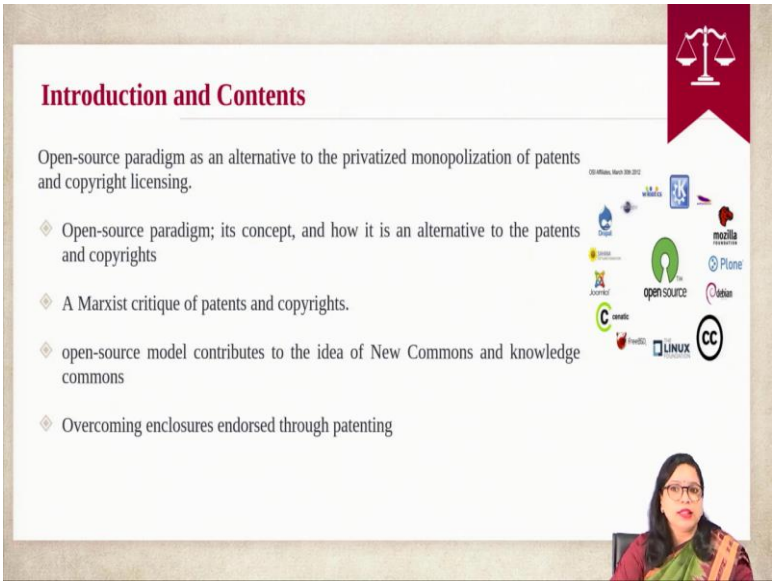

A warm welcome to all, today we will discuss The internet, Open-source and commons. In this module, we will be discussing how the open-source paradigm can be an alternative to the privatized monopolization of patents and copyright licensing which we were discussing earlier. In this lecture, we will cover the idea of the open-source paradigm its concepts, and how it is an alternative in comparison to the patents and the copyright in existence.

Alongside we will also look into the Marxist critique for understanding patents and copyrights. Then we will delve into how the open-source model contributes to the idea of new commons and knowledge commons while also discussing how enclosers endorsed by the monopolization of the patenting can be overcome.

While we discuss all of the work, we will also introduce cases from the software industry information and pharmaceutical industry to vouch for the sustainable approach that the open-source model tends to highlight.

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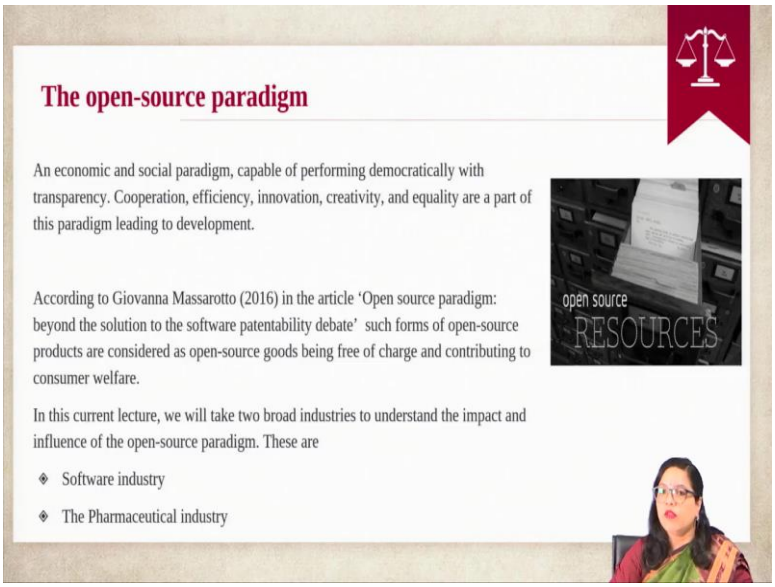

When we deal with open source, it mainly refers to an economic and social paradigm that is capable of performing democratically with transparency. Cooperation, efficiency, innovation, creativity, and equality are a part of this paradigm leading to its development. According to Giovanna Massarotto in the article 'Open-source paradigm beyond the solution to the software patentable debate' such forms of open-source products are considered as open-source goods being free of charge and contributing to consumer welfare.

In this lecture, we will also take two broad industries to understand the impact and the influence of the open-source paradigm. These are the software industry and the pharmaceutical industry. So, let us begin with the first one.

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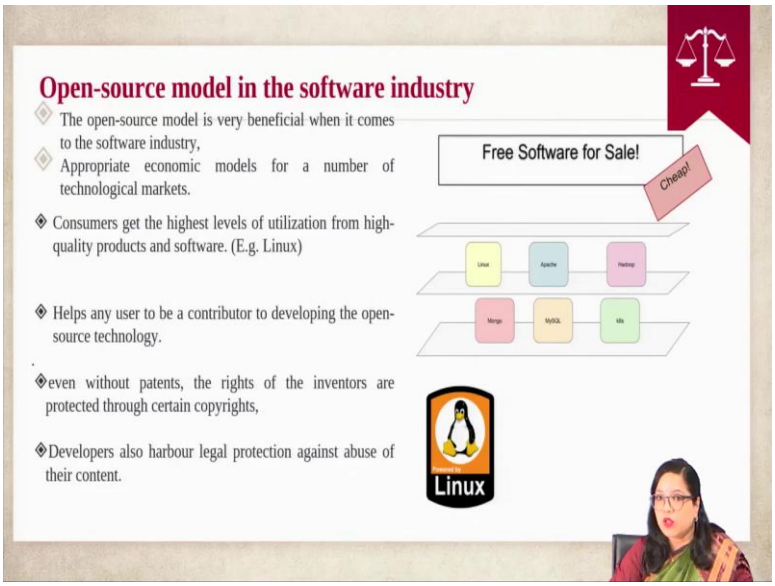

Massarotto further explains that the open-source model is very beneficial when it comes to the software industry and can and it also can be one of the appropriate economic models for several technological markets. Within the open-source paradigm, consumers get the highest level of utilization from high-quality products as well as software such as Linux which is free.

This free sharing of information helps any user to be a contributor to developing open-source technology. Moreover, even without patents being given for software the rights of the inventors are protected through certain copyrights while also providing the developers with legal protection against the abuse of their content.

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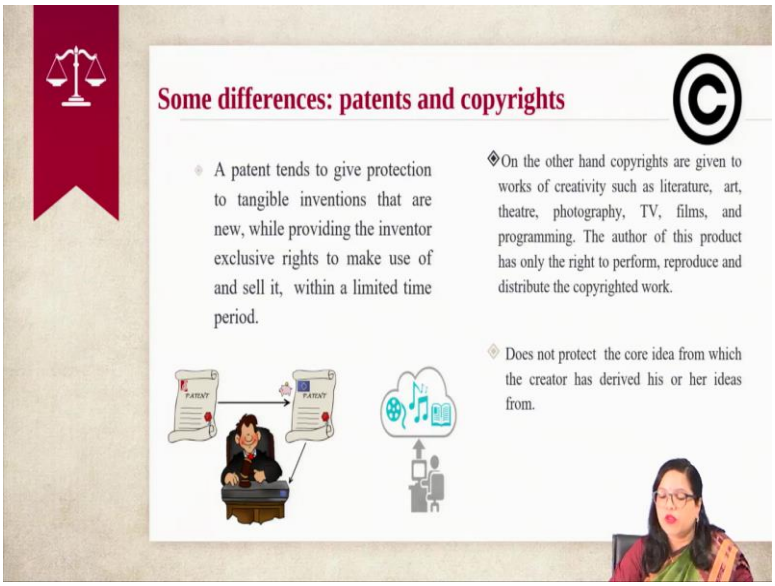

When the aspect of differences arise between the open-source world and the legal license, the legal system usually provides rights and protection for intellectual properties. Among them the patents and copyright protection that we have already touched on are open; however, let us take a look into the basic differences between the two to understand how the open-source model and how the open-source model works and make use of them.

A patent tends to give protection to tangible inventions that are new while providing the inventor exclusive rights to make use of and sell it within a limited period. On the other hand, copyrights are given to works of creativity such as literature, art, theater, photography, TV, movies, and programming.

The author of this; author of this product has only the right to perform reproduce and distribute the copyrighted work. However, this does not protect the core idea from which the creator has derived his or her idea.

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Additionally, in the case of copyrights, one can invoke a fair use rule that one can use not take prior permission and give credit to the creator by making use of the creation in some way. For example, researchers can quote an author under this rule which may be explaining the author's viewpoint. Further, in the case of software copyright, a programmer can modify his own program's code, but anyone can reprogram it without infringing on the copyright.

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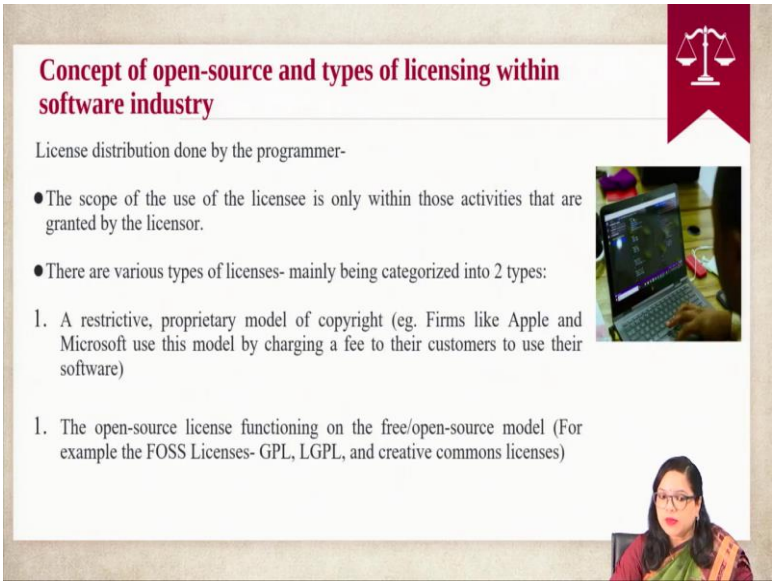

Let us begin this section of discussion with the idea of how the open-source world functions. We require certain terminologies which will help us to understand the context well. When we deal with software there comes the aspect of license distribution given by the programmer. The scope of the use of the license is only with those activities that are granted by the licensor.

There are various types of licenses mainly they can be categorized into two types. A restrictive license comprises a proprietary model of copyright example the firms like Apple and Microsoft use this model by charging a fee to their customers to use their software. The open-source model can be the second one or the open-source license functioning on the free open-source model. For example, the Foss license like the general public license, lesser GPL, and the creative commons license is used for the work of distribution under this model.

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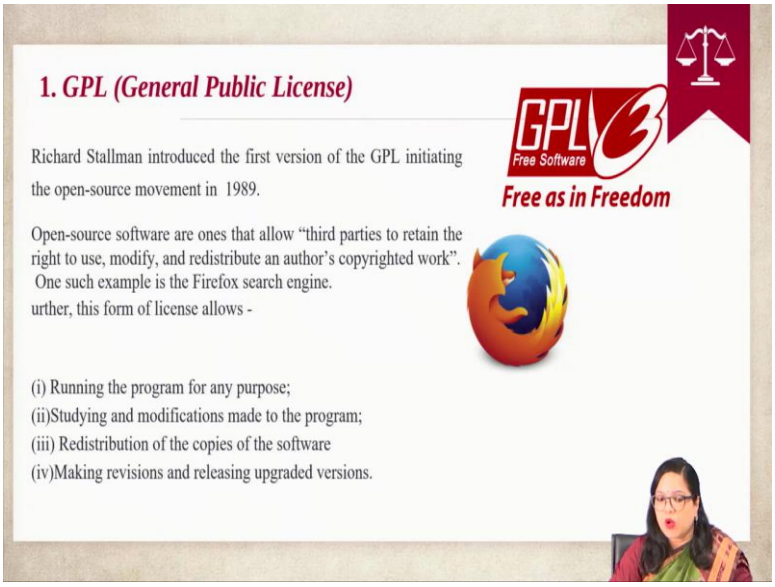

Richard Stallman introduced the first version of the GPL initiating the open-source movement in 1989. Open-source software is the one that allow third parties to retain the right to use modify and redistribute the author's copyrighted work. One such example is the Firefox search engine. Further, this type of license allows running the program for any purpose, studying and modifications made to the program, redistribution of the copies of the software, making revisions, and releasing the upgraded version.

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Such open-source GPLs provide copy-left aspects as it is in contrast to proprietary products or proprietary software. There seem to function as corporative agreements and hence help in making the new derivative creative products. GPLs are non-contractual licenses in nature; however, other schools of thought consider them as law-bound and contractual within the license versus the contract debate.

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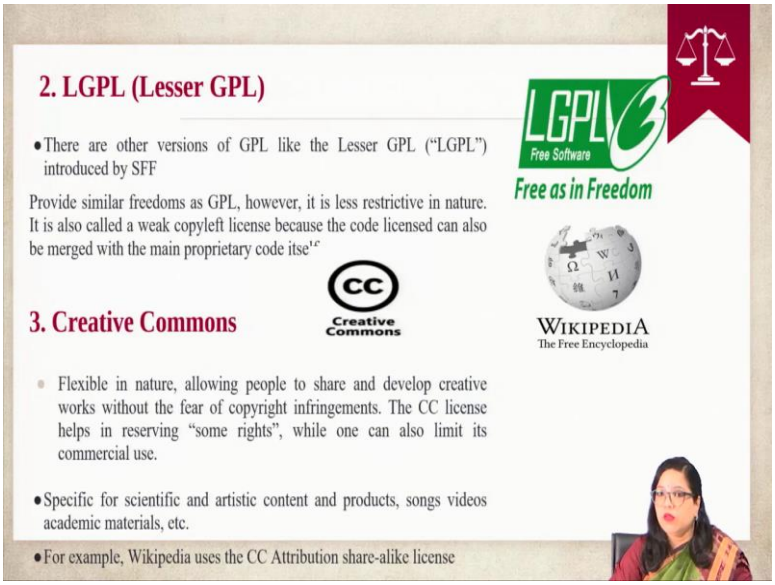

There are other versions of the GPLs like the lesser GPLs introduced by the SFF which also tends to provide similar freedom as the GPL. However, it is less restrictive in nature

and it is also called the weak copyleft license because the code license can also be merged with the main proprietary code itself. Third, we have the creative commons license which is much more flexible in nature allowing people to share and develop creative works without the fear of copyright infringements.

The creative commons license helps in reserving some rights while one can also limit its commercial use. This license is specific for scientific and artistic content and products, songs and videos academic materials etcetera. For example, Wikipedia uses the creative commons attributions share alike where you can use the content, but if you come up with a modification then you also have to share alike.

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When the concept of copyright versus open source is at the forefront the theoretical lens to understand the same is that of Marxism. According to Soderberg in his article 'Copyleft versus Copyright, Marxist critic copyright has been considered synonymous with capitalism, and to oppose the copyright is equivalent to opposing capitalism.

Soderberg highlights that the concept of a Marxist critic of capitalistic hegemony can also be parallel to the copyright movement that also tends to isolate power in the hands of the selective view when it comes to the aspect of intellectual property.

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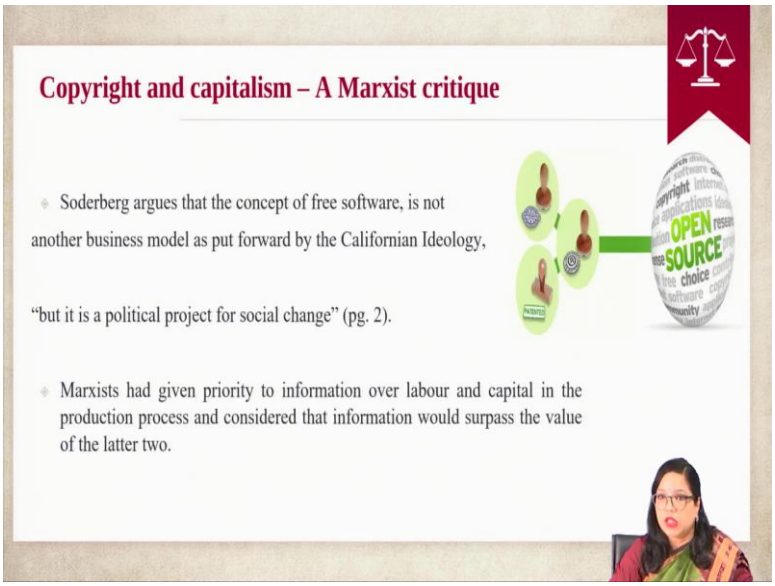

Soderberg argues the concept of free software is not another business model as put forward by the Californian ideology, but it is a political project for social change. Marxists had given priority to information over labour and capital in the production process and considered that information would surpass the value of the latter two.

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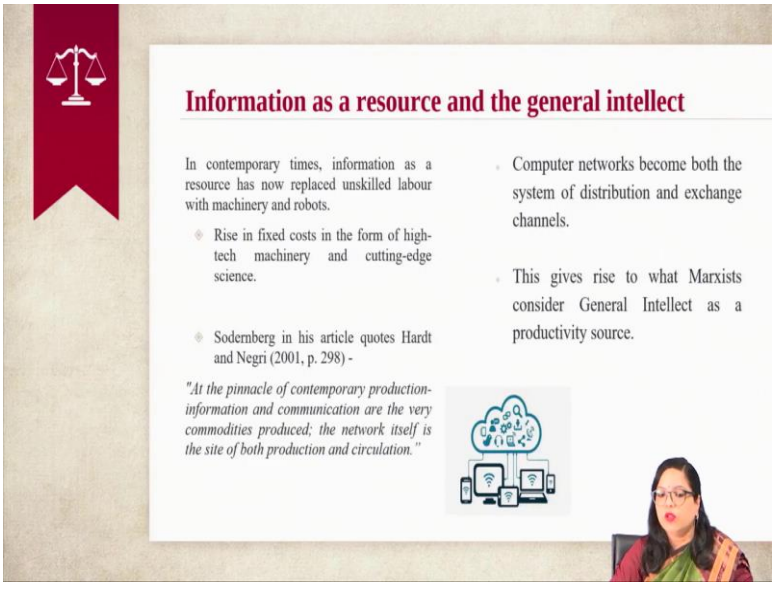

However, the growth of information as part of models or modes of production as per the Marxian concept also took a capitalistic turn. This was because its production was also a result of the wage labour inputs. In contemporary times according to him, information as

a resource has now replaced unskilled labour with machinery and robots causing a rise in fixed cost in form of high-tech machinery and cutting-edge science.

Soderberg in his article quotes Hardt and Negri that where they say that at the pinnacle of contemporary production information and communication are the very commodities produced the network itself is the site of both production and circulation. Computer networks become both the system of distribution and exchange channels. This gives rise to Marxist consideration or what Marxists consider as general intellect as a productive source.

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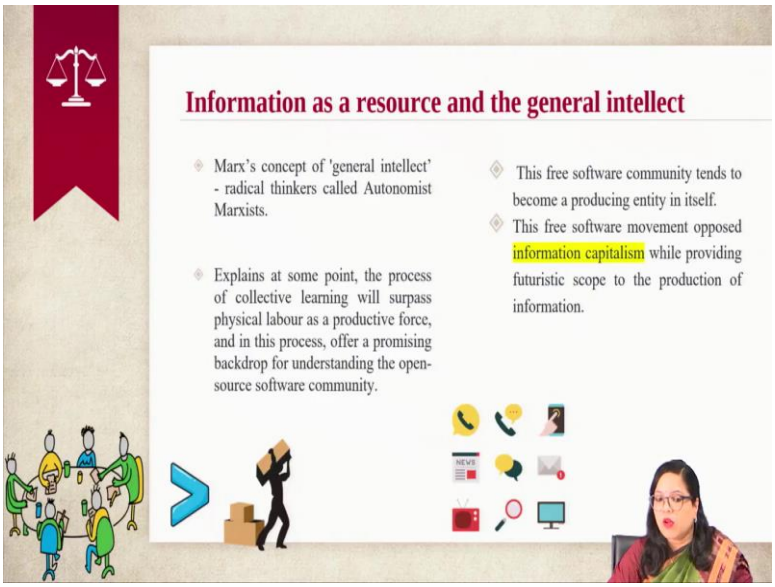

Marx's concept of general intellect has been explored by a contemporary school of radical thinkers called the autonomous Marxist. Marx's concept of general intellect explains that at some point the process of collective learning will surpass physical labour as a productive force and in this process offer a promising backdrop for understanding the open-source software community.

This free software community tends to become a producing entity itself. The free software movement that arose gave rise to the opposition when it comes to information capitalism while providing wider futuristic scope and development to the future production of information.

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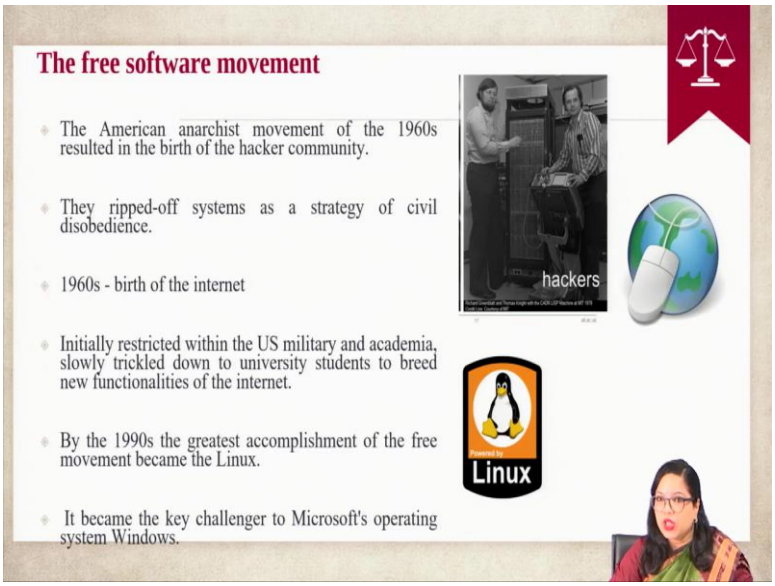

Additionally, when the free software movement is considered the free software movement and its origin also seems to be a relevant point of discussion. The American anarchist movement of the 1960s resulted in the birth of the hacker community which was proficient in ripping off the system as a strategy of civil disobedience. In the 1960s the birth of the internet also began with its basis being restricted within the US military and academia which slowly tickled down to the university student to breed new functionalities of the internet.

By the 1990s the greatest accomplishment of the free movement became Linux the biggest and the most recognized free software project of significance. It became the key challenger to the Microsoft operating system known as Windows.

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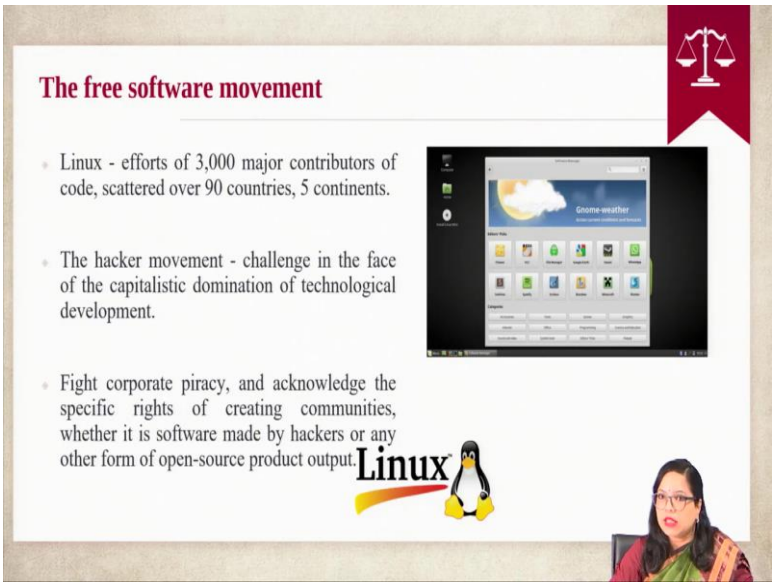

Linux is based on the efforts of at least 3,000 major contributors of code scattered over 90 countries and 5 continents. Soderberg also pays stresses the hacker's movement in general and it is a challenge in the face of capitalistic domination of technological development.

Hence the main strategy of the copyleft and the free software movement is to fight corporate piracy and acknowledge the specific rights of creating communities whether it is software made by hackers or any other form of open-source product output.

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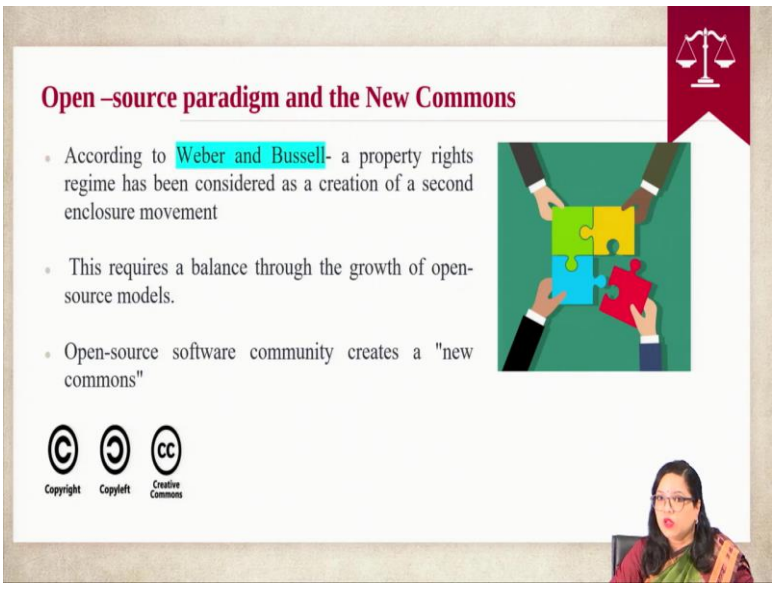

According to Weber and Bussell in the article ‘The New Commons versus the Second Enclosure Movement - commons on an emerging agenda for developmental research', a property right regime has been considered as a creation of the second enclosure movement that requires to be balanced throughout the growth of open-source model. In this light, it has been witnessed that the open-source software community creates a new commons.

The new commons such as the social commons the digital commons or the knowledge commons among others act as a productive tools giving rise to the egalitarian redistribution of intangible assets while allowing human engagement and the creation of inventions and solutions. Such creation of new commons also helps in redefining aspects like ownership rather than focusing on the rights of exclusion.

Weber and Bussell indicate the open-source software movement as a paradigm to depict the innovation potential that has been unleashed by the new commons.

As per the authors, the new commons can be explained in two processes. Either the return to the human capital will increase while causing a decline in the profit garnered through the intellectual property rights or shifts of intangible assets will take place from the Global North to the Global South and call the expansion of the new commons there as it will help grow the areas that have less access to intangible assets, unlike the north.

Further collaboration from entrepreneurs corporations and innovators and the state as well as these powerhouses would help extend the ownership rights causing a shift from the monopoly mindset to the open-source model helping the new commons grow. Hence Weber and Bussell’s analysis highlights the likelihood that the new commons can play an important role in the growth of the new global political economy.

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Weber and Bussell argue for the possibility of expanding the New Commons through 3 steps. The proven economic viability of FOSS in application in the North, emerging powerful corporate allies in the Global North from which the Global South could also benefit from the New Commons, and the Global South derive benefits from FOSS to make better use of the New Commons.

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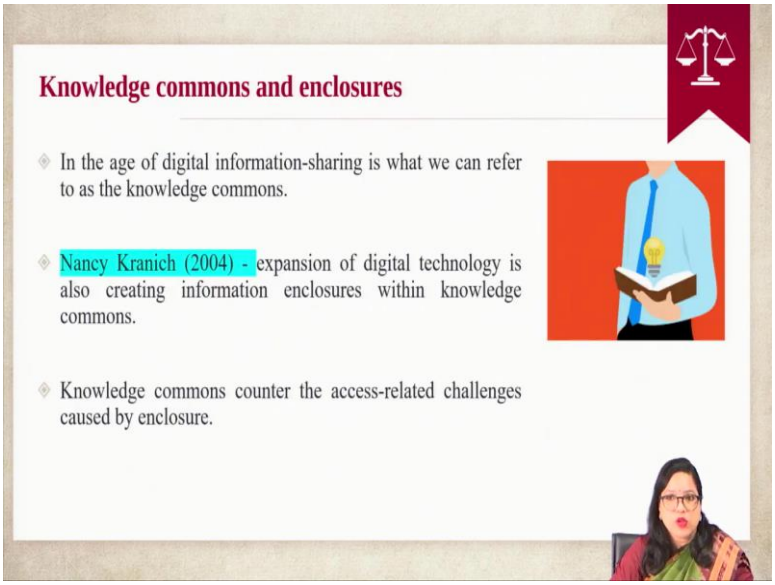

In the age of digital information, sharing is what we can refer to as the Knowledge Common. Nancy Kranich in her article 'Countering Enclosure- reclaiming the knowledge

commons' explained that the expansion of digital technology is also adding to the creation of information enclosure when it comes to the knowledge commons.

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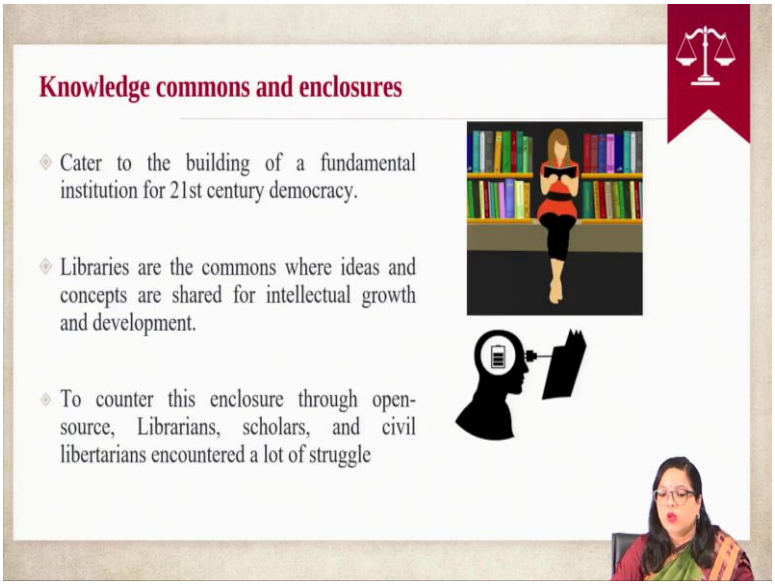

Knowledge commons not only counter the access-related challenges caused by the enclosure formation but also cater to the building of fundamental institutions for 21st-century democracy. When we talk about the knowledge commons libraries are the commons where ideas and concepts are shared for intellectual growth and development. To counter this enclosure through open-source, Librarian scholars and civil libertarians encountered a lot of struggle.

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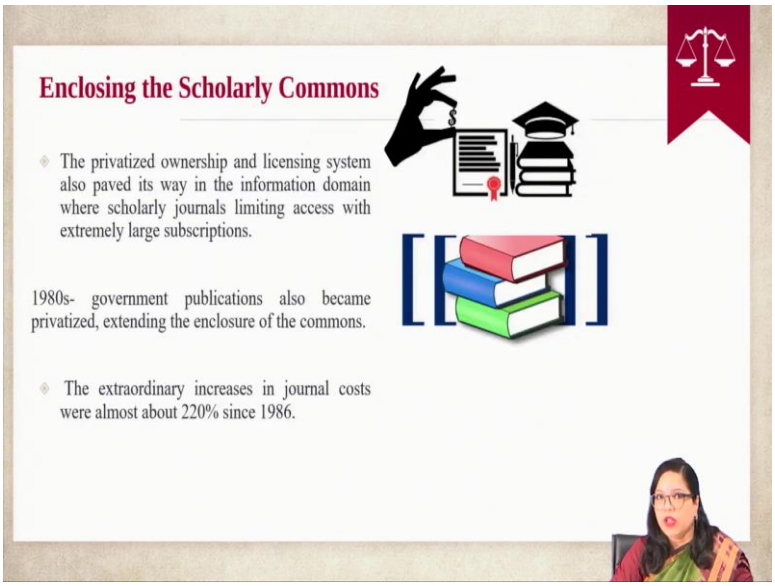

The privatized ownership and licensing system also paved the way for the formation of the information domain where scholarly journals limited access with extremely large subscriptions and fees establishing enclosures on the information by information proprietors.

This expanded since the 1980s when government publications also became privatized, extending the enclosures of the commons and converting the general publishers into private firms applying for expensive licenses. The extraordinary increase in journal cost was almost about 22 percent since 1986.

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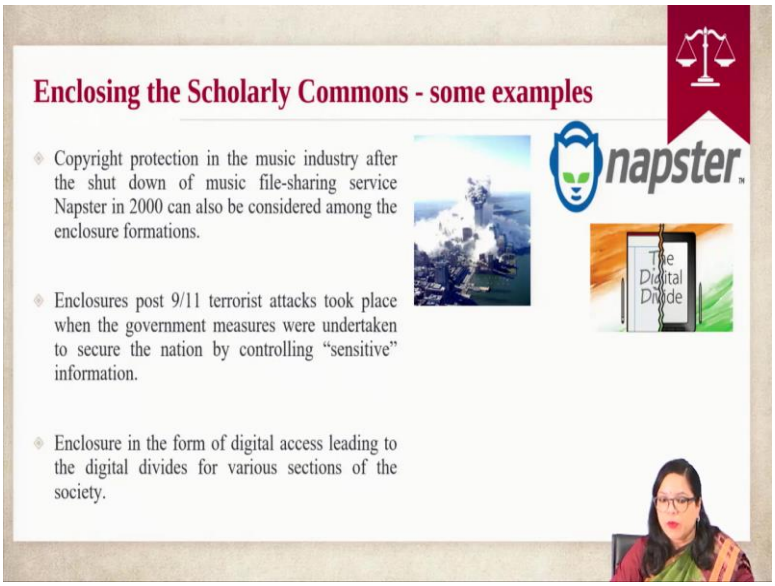

Copyright protection in the music industry after the shutdown of the music file-sharing service Napster in 2000 can also be considered as an enclosure formation. Another type of enclosure post 9/11 terrorist attacks took place when the government majors were undertaken to secure the nation by controlling sensitive information. Finally, another type of enclosure can be considered in the form of digital access leading to the digital divides for various sections of society.

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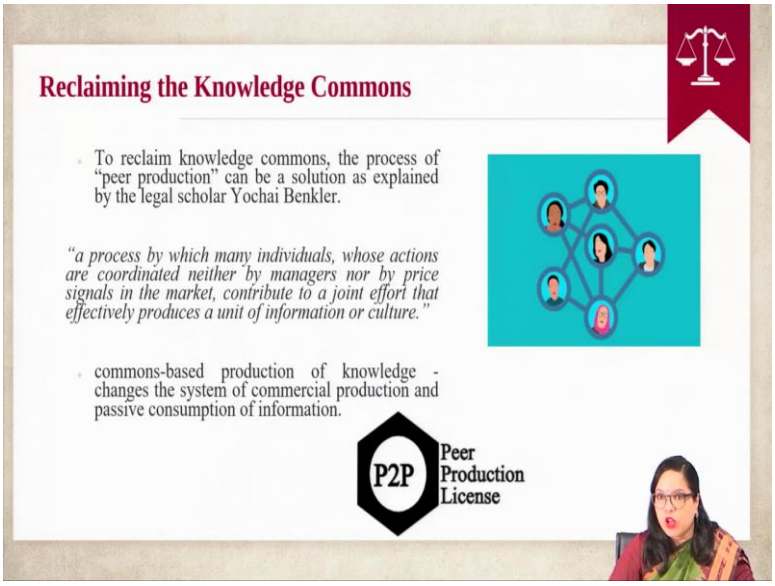

To reclaim the knowledge commons the process of peer production can be a solution as explained by the legal scholar Yochai Benkler. He states that peer production functions through a process by which many individuals whose actions are coordinated neither by the manager nor by the price signals in the market, contribute to a joint effort that effectively produces a unit of information or culture.

This produces common-based production of knowledge that does not challenge the individual authorship but changes the system of commercial production and passive consumption of the information. Everyone becomes a creator in the peer production process providing opportunities for new narratives and equitable access to information.

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To counter the enclosure certain alternative models of publishing became dominant among the scholarly community and it has launched well-managed self-covered knowledge commons. Certain ways in which enclosures could be avoided are as follows. Open access to scholarly journals some examples include scholarly publishing and the academic resource coalition founded in 1998 as an alliance of research libraries, universities, and organizations.

The American Anthropological Association is the AnthroSource and AnthroCommons portal. Digital repository in 1999 Open Archives Initiative was launched by the library community to provide publicly accessible articles in the online journal through digital

repositories example the MITs digital library space Dspace this platform got a grant of 1.8 million dollars from Hewlett Packard as an open-source software platform.

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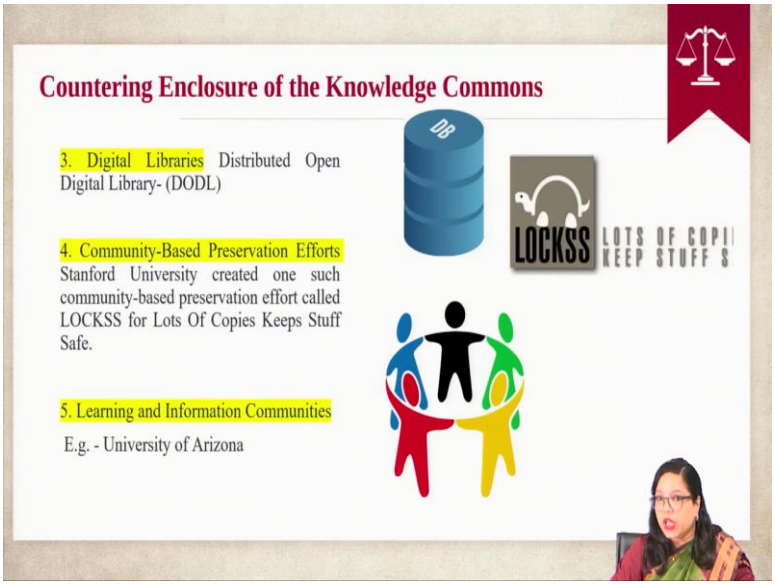

Digital libraries we take include the distributed open digital libraries which were initiated by the research libraries to provide universal online access to public domain humanities and social science collections from different research institutions that could be used by scholars, teachers, students, and the public.

The community-based preservation efforts like Stanford University created one such community-based preservation effort called the LOCKSS the lot of copies keeps stuff safe. This was based on libraries and their collective action comprising 80 of them while also functioning with around more than 50 publishers, these efforts tend to copy and store the journal content with the help of a common infrastructure for systematic capturing of the files.

The fifth one or the learning and information communities if we see then such communities were created on university campuses such as the University of Arizona where the library the center of computing and information technology and the university teaching center developed and share facilities in partnership with other units on the campus.

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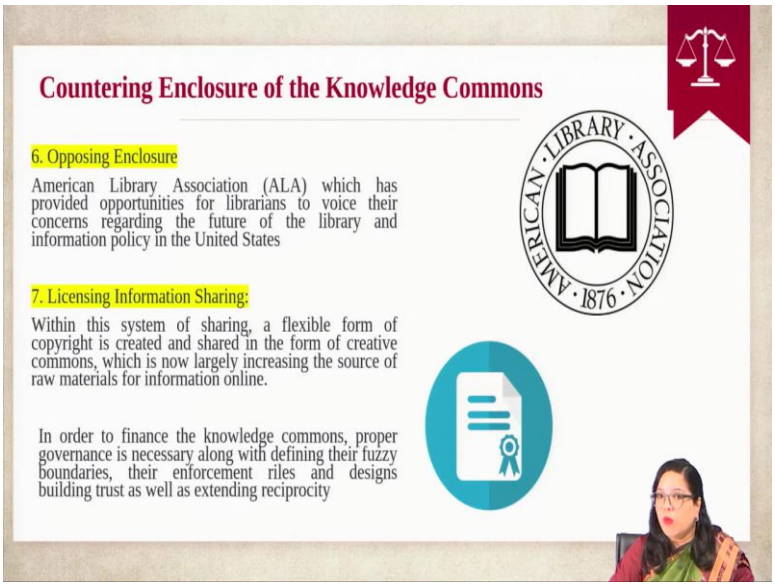

To oppose enclosure bodies were created like the American library association which has provided opportunities for librarians to voice their concerns regarding the future of the library and information policy in the United States. Licensing information sharing if we see then within the system of sharing a flexible form of copyright is created and shared in the form of creative commons which is now largely increasing the source of raw materials for the information online.

To finance the knowledge commons, proper governance is necessary along with defining their fuzzy boundaries their enforcement rules, and the design building trust as well as extending the reciprocity.

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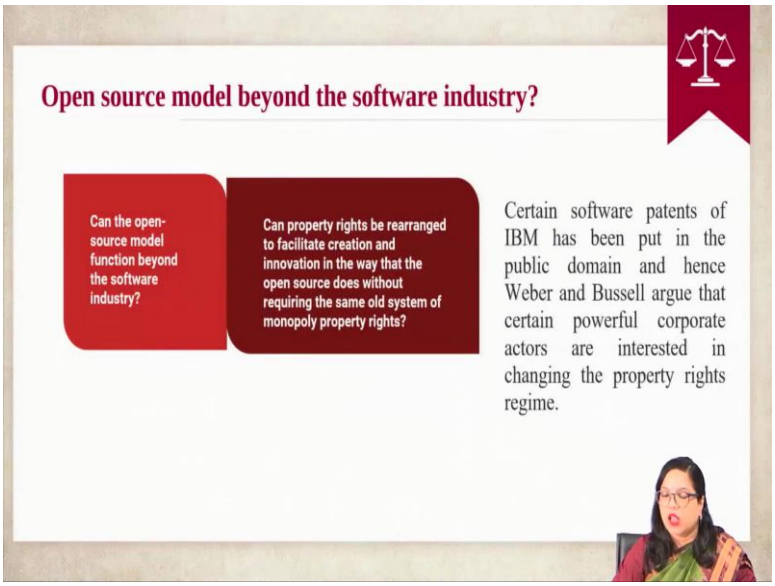

Additionally, certain questions are as follows - can the open-source model function beyond the software industry? Can the property rights be rearranged to facilitate creation and innovation in the way that the open-source does without requiring the same old system of the monopoly of property rights?

Examples of affirmative cases are like using IBM's certain software patents which the IBM has been put in which IBM has put in the public domain hence Weber and Bussell argue that certain powerful corporate actors are interested in changing the property rights regime.

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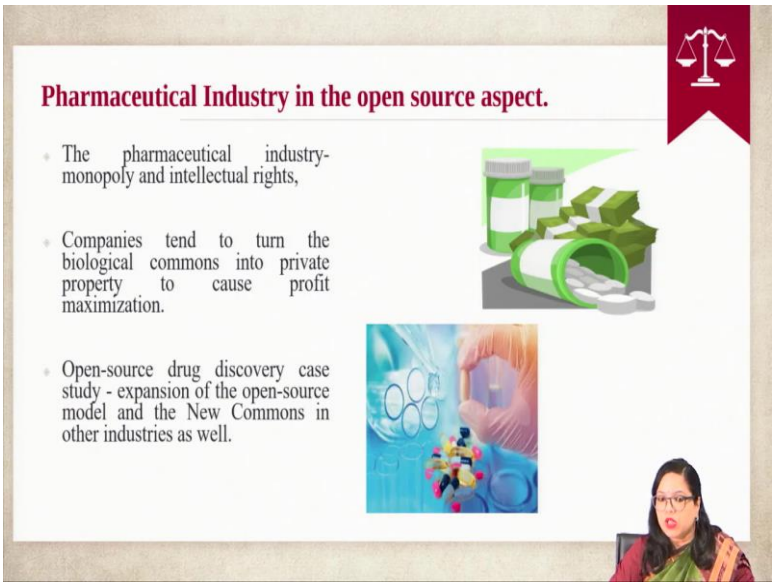

The pharmaceutical industry is considered to be an archetypical beneficiary of monopoly and intellectual property rights. As such companies tend to turn the biological commons into private property to cause profit maximization. However, an open-source drug discovery case can be included to determine the legitimate expansion of the open-source model and the new commons in the industry as well.

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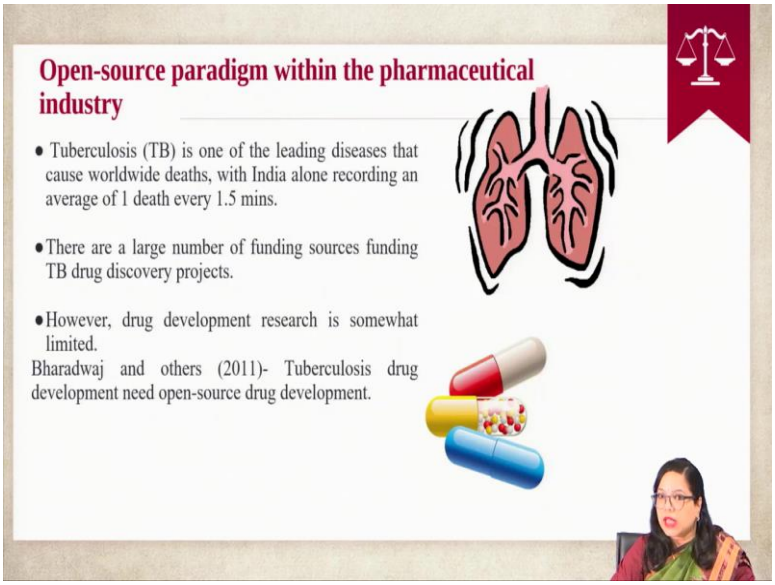

The second industry that we will be discussing is open-source in the pharmaceutical industry dealing with drug development. Bharadwaj and others in their article 'The

Open-Source Drug Discovery- a New Paradigm of Collaborative Research in Tuberculosis Drug Development' have discussed the case in detail.

It is well known that tuberculosis is one of the leading diseases that cause worldwide death with India alone recording an average of one death every 1.5 minutes. There is a large number of funding sources renowned around the world that fund the TB drug discovery project such as the National Institutes of Health USA, European Union framework Bill and Melinda Gates Foundation, and pharmaceutical industries such as Novartis Ascenta Johnson and Johnson they have been funding programs on the TV drug discovery.

However, when compared to drug development in comparison to cancer research it is somewhat limited hence according to Bhardwaj and others in that article the authors necessitate the need for open-source drug development for this particular case.

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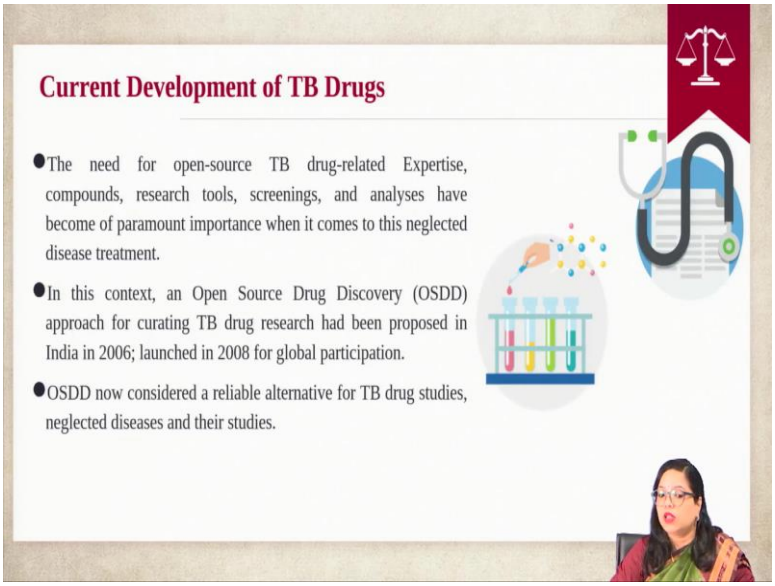

The need for open-source TB drug-related expertise compounds research tools screening and analysis that has become of paramount importance when it comes to these neglected diseases. In this context, an open-source drug discovery approach for circulating TB drug research has been proposed in India since 2006. This project then was launched in the year 2008 for global participation later on.

Given the progress made now the open-source drug discovery method has become the alternative model for TB drug studies. Given the progress done in the human genome project and the growth of the software industry and the World Wide Web, open-source drug discovery now is considered a reliable alternative for neglected diseases and their studies.

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In providing the developing world with proper health care with the help of a global collaborative platform that functions to collectively fund the drug for the treatment of tropical diseases that are neglected such as TB, malaria etcetera to attain the version of open-source software development, it tries to reduce the risk that is associated with drug discovery stage through the collaboration between scientists, doctors, students, and technocrats.

Designed to function through the web-based platform academy and industry expert the main approach tries to solve drug discovery problems while also testing novel methods. The decentralized process of drug development and discovery is planned in a detail harnessing the forces of distribution and co-creation.

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Open-source drug discovery is considered a process of the integrative practice of science using modern tools to communicate. In this process, all the open-source drug discovery data are shared with the researching and the producing community with the help of a portal. Such sharing helps in reducing or reducing duplicates and allows for proper credit given to the creditors.

All the contents in this case are available through the open-source drug discovery license where anyone can contribute and give back to the community. This system is considered as a baton passing. The portal has a micro attrition system and algorithm to assign credits to the contributors which are tagged by the date and time stamp and the contributor stamp.

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Through these processes, clinical trials laid the ground for a globally accepted directly observed treatment shortcut short courses that have been taken under public funding in India in the Tuberculosis Research Center. Several CROs have come up in India that specializes in a clinical trial in the last 10 years and many pharmaceutical industries have worked on the TB drugs such as CSIR IIIM developed anti TB drug Rizo 915 in partnership with Ms. Cadilla pharmaceuticals.

Also, Ms. Upin pharmaceuticals collaborated with CSIR in their clinical trials of another anti-TB drug. The community data that is uploaded and produced in the open-source drug discovery that is available through the cyborg requires supplementing from various resources. Overall 50 different resources of around a million data points have been integrated into a standard feature such as the Generic Feature Format EGFF which provides the largest resource on micro bacterial genomics in a standard intro parable format.

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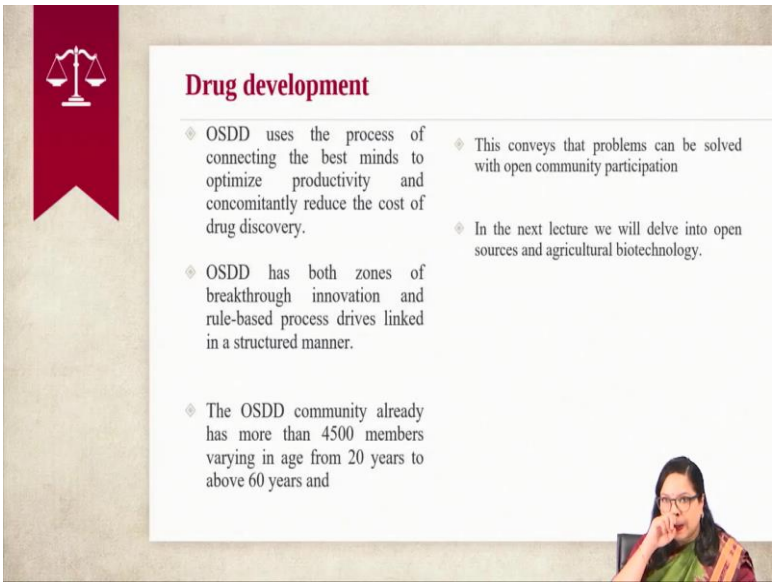

The CSIR India a premier organization for research and product development holding the largest number of patents and playing a key role in the development of the generic drug industry in India has taken a bold step in this regard. Forwarding in initiating a novel open-source approach to drug discovery for TB which is a disease of the developing world. Open-source drug discovery uses the process of connecting the best mind to optimize productivity and concomitantly reduce the cost of drug discovery.

The OSDD has both zones of breakthrough innovation and rule-based process drives linked in a structured manner. The OSDD community already has more than 4,500 members varying in age from 20 years to 60 years onwards this conveys that the problem can be solved with open community participation and before all most important for a failure-prone and complex process like the risk drug discovery.

These factors are already serving to ignite other scientific programs in the similar open-source approach to adopt the open innovation mode by pharmaceutical companies interested in the pre-competitive space.

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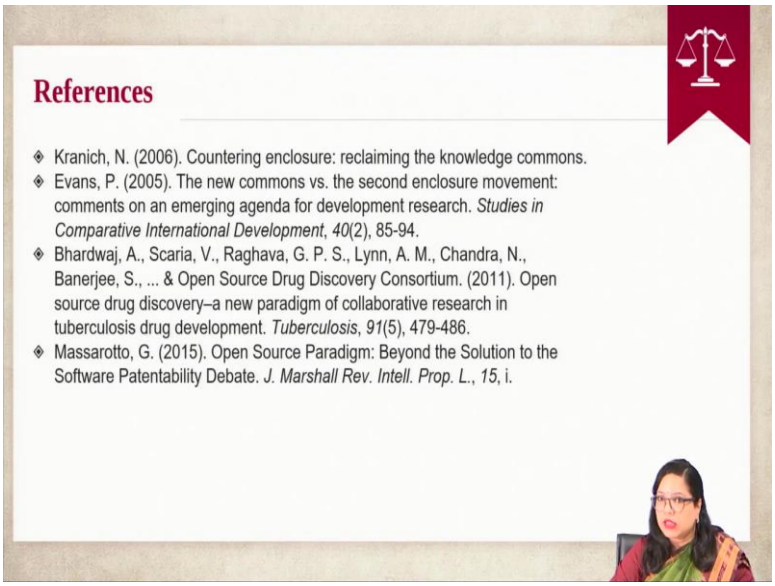

Having discussed this, we will discuss other issues.

Thank you and have a great day ahead.