Review of the Book
The Future of Ideas - by Lawrence Lessig

At the very beginning of the book, author points the fundamental puzzles out: "Why would be burden the creative process with rules that seem to have no connection to innovation and creativity? What could ever lead anyone to create such a silly and extreme rule?" Are we reaching the 'blind spot' in our society? If we are, will this blindness going to harm not only the innovation of Internet entrepreneurs, but also the innovation of authors or artist more generally? These questions are more philosophical, but they are leading us to the key question/discussion about "the property".

Till today, fortunately and finally our society solved one great question – how, or better to say who, should allocate and regulate the resources. The socialist East placed its faith in the government, and the free-marked West placed its faith in the market. Now, when we have the answer, when we know that the market and private property is the way, we are facing next big question – whether the resource should be *controlled or free*.

Certainly, this is not a new question, and as author cleverly concluded, we've been well trained to ignore it. The availability of the resource that remains outside the exclusive control of someone has been central to progress in our society. On the one side, we have free resources, such as roads, radio stations, scientific theories and developed equations, parks, etc. But, there is no thing as a "free lunch". Resources cost money to produce, but how they are produced says nothing about how should it be - *free or controlled.* Similarly, this discussion applies to the Internet as well. The Internet and its resources are supposed to be free and they are "the world the greatest demonstration of the power of freedom". However, the changes in the architecture of the Internet are sapping its power.

This book is fundamentally about the Internet and its effect or innovation, both commercially and non-commercially.

Commons and layers

There are two obscure ideas: "commons" and "layers".

Commons are "all the resources that are held or enjoyed equally by a number of persons, so it is free for them". According to the author, what has determined "the commons" is the character of

the resource and how it relates to a community. Further, commons could be divided into rivalrous and nonrivalrous. *Nonrivalrous* resources cannot be exhausted. If one person listen some song, after he finish listening, there is equal amount of the music left. If resource is nonrivalrous then the problem is whether there is enough incentive to produce it. Oppositely, for *rivalrous* resources we have to worry both about whether there is sufficient incentive to create it and about whether consumption by some will leave enough to others.
The Internet is an innovation commons. It is nonrivalrous, but there are still physical limitations (bandwidth, memory, etc.) that forced us not to use it as much as we would like and that is the problem of over-consumption. But, researchers have shown, norms adequately limit the problem of over-consumption (communities work out how to regulate over-consumption).

By Benkler, in general, communication systems could be divided in the three layers:

1. *physical* (across which communication travels)
2. *logical* (the code that makes the hardware run)
3. *content* (actual stuff that gets said or transmitted).

Each of these layers could be controlled or free. What is special about the Internet is the way it mixed freedom with control at different layers.

In this book, author gave us a number of examples that help us understand the ideas and possible problems in the communication medium. Especially interesting and useful are examples with historical reviews. One of the most mentioned example is development of telephone system and AT&T.

Shortly, story goes like this: from the very beginning AT&T had monopoly over the telephone. In order to keep that monopoly (at some point CEO of the AT&T said that they will be damned if they let competition) they decided not to *allow* competitor to build the new system. In defending the monopoly, it reserved itself the right to decide what telecommunication would be *allowed*. And this is excellent example what happens when monopoly is allowed. As author concluded, it doesn't mean that AT&T or its managers were evil, they were simple fighting for what is the best for them.

The very beginning of the Internet was possible because in 1980s government restricted control of how AT&T's wires would be used (stopped AT&T monopoly over their wires), and in effect created a commons on AT&T's wires (before that, nobody could connect anything to the AT&T's wires without their permission, so they had a perfect control over them).

Sometimes The Internet is mixed with telephone network. The Internet is *not* the telephone network – it is a network of networks that sometimes run on the telephone lines. What makes the Internet so innovative, so free for the users are the idea, or the principle on which the Internet is built. The power of the Internet is in end-to-end (e2e) principle. This principle was the most important for the success of the Internet. This principle allows that user don't need to change the network for different applications; internet protocol rout data regardless what it is; neutral to data, i.e. it cannot discriminate any particular data. Thus, the network itself would not control how it would grow. Applications will. This was original philosophy.

As Berners-Lee puts it, "There's a *freedom* about the Internet: as long as we accept the rules of sending packets around, we can send packets containing anything to anywhere." So, the Internet is innovation common, where we can develop applications without anyone permission.

Today, we are facing a new trend, where many providers are trying to involve control over the content on the Internet. To do that, they took the capacity as the excuse. Namely, as content on the Net moves to real-time (by streaming both sound and video), control is introduced by several providers, with the excuse "to provide quality of service", which is actually discrimination of data, and that changes the whole principle of the Internet.

Commons

Three aspects of commons are:

1. commons of code
2. commons of knowledge
3. commons of innovations built by the first two together.

Commons work together. They increase the value of controlled resources by connecting them with free resources. Today, the very idea that non-exclusive rights might be more efficient than exclusive rights rarely enter the debate. The attitude of the most influential in public policy is that the free, or common, resources provide little or no benefit.

But there is another view – that commons sometimes create more wealth and opportunity for social than those same resources hold privately. These are two reasons why public roads, a navigable waterway, or town square are left in common:

1. they could be monopolized by private persons
2. the properties themselves are not valuable when used by indefinite and unlimited number of persons.

Where we have little understanding about how a resource will be used, we have more reasons to keep that resource in common. Where a resource has a clear use then, from a social perspective, our objective is simply to assure that that resource is available for the highest and best use. Concentrating control will not produce disruptive technology because good business is focused on improving its lot, and disruptive technology haven't lot to improve.

Distinction between the resources helps us isolate the different reasons why a resource might need to be controlled:

1. rivalrous (car, land, computer) – to assure that resource is both produced and not overused.
2. nonrivalrous (ideas, music, expression) – to assure that resource is created.

Why the commons are good or necessary could be understood when we think about the roads, parks etc. But, also, it is advantageous to have communications as commons. What happened with communications if they are not common can be discussed with the example of the radio. Radio at the star looked like the Internet at the start – it was noncommercial, radio spectrum was common, everybody could use it without anyone permission. Then the government (politicians) realized the power and potential of the radio and they decided to control it. Spectrum (radio spectrum) is not common resource today. Government control who has the right to use it, and this control slowed, or in this case better to say chilled, innovations. Liberating spectrum from the control of government is an important first step to innovate in spectrum use.

With the nonrivalrous resources, technology can't itself solve the problem of incentives. Intellectual property law does this by giving the producers limited exclusive rights over their intellectual property, so they can recover the costs of producing that property and receive a sufficient return to give them the incentives to produce that property. The aim of the society must always be to draw the optimal balance of the control. In the environment of the Internet we are observing now alter the balance between the control and freedom on the Net. Control is increasing.

Another famous and instructing story is story about the operating systems. AT&T made operating system - UNIX. At the beginning it was offered for free and great number of people were educated on this operating system. Suddenly, AT&T decided to take it back, and fee had to be paid in order to use it. Many researchers in the industry and in the universities were very unsatisfied with this decision. As the result GNU project (GNU's not UNIX) was started with the idea to develop operating system. Soon after, as a result, operating system called LINUX was developed , that would be offered for free. LINUX was built by volunteers, based on a commons of code, knowledge and innovation upon the code. IBM made this story even more significant. IBM gave up on developing its own operating system and the used LINUX to incorporate it in their servers. Not only that, IBM invested in further development of the LINUX. They found an interest to invest money in developing something that is common! Certainly, they had their interest in it, and as a result their servers are covering 2/3 of the web today.

This story is also story about the internet, where a great number of people invest their time and money to develop new applications that will run on the Internet. Amazingly huge number of people participated in developing the Internet that we see today. Open and free protocols, as well as open and free software that run on top of those protocols: these produced the Net.

Many great, I would say open-minded scientist, researchers, philosophers came to the similar conclusion – that common can sometimes bring more to the society then if it is 'property'. In Jefferson's poetry he said: "He who receives an idea from me, receives instruction himself without lessening mine; as he who lites his taper at mine, receives light without darkening me.".

Incentives

It has been already mentioned that with the nonrivalrous resources, technology can't itself solve the problem of incentives. For that purpose we have intellectual property law which gives *limited* exclusive rights to producers over their intellectual property, so they can recover the costs of producing that property and receive a sufficient return to give them the incentives to produce that property.

Copyright tries to remedy problem of incentives by giving author *limited* right – an exclusive right to control some uses of their work for a *limited time*. An author can granted license to other person who wish to use his copyrighted work.

There are different approaches with different operating systems. LINUX is based on GPL (general public license) – freedom to make a copy, modify it and give to other GPL for your modified software. On other side, we have approach that Microsoft took, where they controlled its own code – and took monopoly. With this monopoly they are able to control the pace of innovation because only they can muck about its code. IBM not only adopted Apache server, and standardize its own servers for free; but they committed its own resources ($1 billion!) to support development of LINUX and Appache. One could ask what is motivation behind the IBM? It is obvious – IBM sells servers, and by running them on better software they have better, more reliable servers. So, indirectly they benefit.

Author of the book, obviously, didn't aim to argue against system of control generally. He simply resists a mistaken interference: "that if some control is good, then more control must be better".

Today copyright has changed its scope to "everything" that you create in tangible medium and in duration – to life plus seventy years. More content is controlled by law today then ever in our history. In addition to limited compulsory right an author is free to take from work published before 1923; is free to take noncreative work (facts); is free to use, consistent with fair use, a limited degree of other's work. Beyond that, the content of our culture is controlled by an ever-expanding scope of copyright. Yahoo!, MSN, AOL, have whole department devoted to the task of taking down "copyrighted" content from any site, simply because the copyright holder demands it. As author of this book noticed cleverly: "This is not the picture of copyright imperfectly protected, this is a picture of copyright control out of control".

In 1998, anticircumvention provision that is intended to protect copyright (Digital Millennium Copyright Act) is brought. Here, there is even no space for fair use. How this affects the Internet? Again, the best explanation is by giving the examples. ICraveTV company, that rebroadcast the TV channels through the Internet, was legal in Canada, but according to U.S.A. law it was (and still is) illegal. Although that company was from Canada, pushed by an army of high-powered lawyers, Congress and the courts have jumped into action to defend the *old against new*. Approximately at the same time to this story, is story were number of parents were complaining that their kids have access to the porn web sites. While on the one side the ICraveTV was forced to shut down the site, on the other side the Congress let to see what will happen in the future with the porn sites, and practically did nothing that would force those sites

to shut down or change their policy significantly. In one case – where the harm is the least – the law is most active; and in other – where the harm is most pronounced – the law stands back If the Net creates an initial imbalance, the response by Congress should not create an equal and opposite imbalance, where traditional rights are lost in the name of perfect control by content holders. Solution should be as with cable TV. When they start to rebroadcast TV channels, soon they were forced for compensation (but they were not shut down) and broadcasting TV didn't have a control which cable TV will take their signal.

Here, the recording industry is doing everything it can to keep Congress far from this solution. They block the potential for innovation, by adding protection for existing interest. It is interesting how Judge Kozinski address the problem of this overprotection. He wrote: "Nothing today, likely nothing since we tamed fire, is genuinely new: Culture, like science and technology, grows by accretion, each new creator build on the works of those whose came before. Overprotection stifles the very creative forces it's supposed to nature.

This protection is not necessary; there is nothing in USA tradition that compels it. "But is pushed not by those with the most to lose, but by those without the most to win." This threaten the future of the Internet.

What is even more threatening for the Internet are patents (patent is granting exclusive rights to an "inventor" for an invention deemed useful, novel, and nonobvious). Motive for patent is incentives. But, if we don't know which direction an improvement is likely to take, patent may actually do harm! The Economist made a broad range of research: Do firms become more innovative when they increase their patenting activity? Studies of the most patent conscious business of all – the semiconductor industry – suggest they do not!!!

By the early 1990s, patent in software had taken off. In 1998 the Federal Circuit decided to use patent for business method. Thus, this expansion in patent protection will shift the competitive field away from the small, non-American inventor in favor of the large, American inventors. With the patent in software – you don't need to reveal the code. Author asks him self where this lead us? He even felt that here we will have anticommons (anticommon is a resource where many have the right to block the use of a resource by others, and therefore many more underuse the resource). Multiple and overlapping patents can make anticommons where innovators are afraid to innovate in a filed because too many people have the right to veto the use of a particular resource r idea!

What is well known is that control, when complex, can often increase the costs of using a resource; increasing those costs can easily chill innovation. Is that what we are dealing with, is not the question, it is conclusion that can be easily derived from the book.

How bad it is, can be seen from what RIAA president says: "no new ideas should be allowed unless the old system of distribution okays it". And, this will be the certain, if unintended, consequence of the patent system as well.

No doubt, patent and copyright promote progress, but often the regime of patents and copyrights expands beyond its initial justification. Author said: "The content layer (the ability to use

content and ideas) is closing without a clear showing of the benefits this closing will provide and with a fairly clear showing of the harms it will impose". Existing interests use the legal system to protect themselves against innovation that might threaten them. We may need fences and perfect control to assure that the world of things runs efficiently. That's what the prosperity of the market, property, and contracts teach us. But, perfect control is not necessary in the world of ideas.

The digital world is closer to the world of ideas than to the world of things. It is closer, but not right there. Capacity is constraint; bandwidth is not unlimited. In media we see concentration of power (in magazines, books, music, films, cable TV) while the Internet is an architecture for distribution that admits of no controllers. Obviously they are opposite.

In Washington, decisions are made by representatives conferring with people whose interests are affected by changes in the Net. But, who represents the innovation net yet made? Who demands that the platform be kept open for them? No one. Some of those interests can't afford the negotiation with existing interests; some interests don't even exist. there is a massive push in cyberspace to reestablish system of control. Why? Because changes threaten existing interests.

Internet as the innovative common

It is almost unbelievable how much innovation we obtained in the last decade from the Internet. Some of them are HTML Books; MP3; Film; Lyrics servers; Culture Database, On-line dictionary, Driving directions; New market; New means of distribution; my.mp3; new demand – Amazon.com recommended (advertise) i.e. speaks to the customer directly what he would like to buy, according to what he already chose. No editor is involved to choose for the customer (what should be advertised).

The platform of the Internet removes real-space barriers; removing these barriers enables individual with ideas to deploy those ideas. The architecture is different; the innovation it encourages is therefore different. Because there is no control – new ideas jump out that would be otherwise forbidden! As an example we can use Napster or my.mp3. They use peer-to-peer (p2p) where the speed and reliability of streaming technology using p2p technology are significantly increased. In each of these stories the lesson is the same. The market is the whole world. Innovation controlled by the most successful on the market will be systematically blind to the new forms of creativity.

Old vs. new

Old is trying to sustain the new – it persists to changes. The leaders of the dominant industries will not adopt the company to disruptive technology. This is something that is going on all the time in history. We all now that leaders in Soviet Union didn't want to change system, even though it was clear that system failed.

Control is a certain way to undermine the innovation it inspires. That is what is happening on the cable networks right now. Cable networks have begun to be gatekeepers on the Net (discriminatory Net). They restricted number of minutes of streaming video (it is threat to the cable TV); they forbid having web sites (they offer that service as well on their servers); they filtered the content; they forbid the home network. They are building a network just the opposite of the network the Internet originally was. They optimize network for uses today – but it will affect future as well. It unables peer-to-peer structure to evolve.

The trend is to move the Internet from the principle of end-to-end that defines its birth to something very different.

Freedom or Control (Open or Close)?

Key question: which model should govern the Internet? Freedom or control. If the Internet infrastructure is to be built without public support then protected monopoly may well be necessary. But, the key question is: what is the cost that may well run with a benefit?

National Research Council report says: "… the continued delivery of open IP service would be an enlightened move in the long-term interest of the industry." Some expect that closed system will open them self up if/when it is pushed by market. But, the pressure the customer put on closed system to open themselves up is not equal to the costs that such system impose on innovation generally. Also, network never in the history voluntarily opened itself after being closed.

We are in midst of a radical change in technology; that change threatens existing interests; those interests have an interest in minimizing the threat that this change presents; they can minimize that threat by reestablishing the choke points on the system that emerges. They cause the architecture to regein strategic control.

Because the Internet is inherently mixed – because it is a common built upon a layer that is controlled – this tension between the free and controlled is perpetual. It needs balance, but the value of balance is not always seen. This value we need to keep focus on.

Conclusions

Whenever the right to innovate depends on someone (government) permission the innovative process is greatly slowed down. We create a world where resources for these new alternatives are held by those with the strongest incentive to stop them.

We are moving resources from the commons into a system of control without an argument about why control will help or why the commons will fail. We are jumping in the name of an ideology without any consideration of the facts of these past ten years.

But, the author leaves us a hope, that there is still a chance that things will go in different direction. Also, at the end of the book, he is suggesting several solutions that should satisfy "all" sides, and when the author is suggesting them, he things first what is in the long-term good for the society.

Thus, he concluded that the critical layer to protect if we are to protect innovation on the Net is the code layer – the space where code decides how content and application flew, and where code could control how innovation develops. First, the government should encourage the development of open code. Second, the government should continue to ensure that no major player in the Internet space is able to architect the Internet space to empower its own behavior. If you provide Internet service, then you must provide them consistent with the principle of end-two-end.

Also, the content layer - technology tied to law, now promises almost perfect control over content and its distribution. And it is this perfect control that threatens to undermine the potential for innovation that the Internet promises. Our aim should be a system of sufficient control to give artists enough incentive to produce, while leaving free as much as we can for others to build upon and create.

The lesson from the history is: monopoly controls have been the exception in free society; they have been the rule in closed societies. Monopolies are not justified by theory; they should be permitted only when justified by facts. Before monopoly should be permitted, there should be person to believe it will do some good – for society, and not just for monopoly holder.

A better system is less concentrated, less controlled, more diverse and decentralized. Rather then "wait and see", the law become the willing tool of those who would protect what they have against the innovation the Net could promise. "The law is the instrument through which a technological revolution is undone. Content and access will once again be controlled; the innovation commons will have been carved up and sold". Here, I would agree with the author: "this is the future of ideas".

At the end, I would like to add that, in my opinion, this book should be read in a much broader context. This book helps to "open-mind" and understands deeper ideas how this world ran and how it should run.