

# *Research on Obstacles to Innovative Methods*

**Huijuan Ruan**

*Tourism College of Zhejiang, Zhejiang, Hangzhou, China*

**Keywords:** Innovate, Obstacle, Mechanism method

**Abstract:** Recipe for encouraging innovation is terribly simple. Examine every policy for the impact it could have on innovation, and if you find evidence that the policy is going to impede it, then rethink it.

## **1. Introduction**

Let me begin with a paradox. It concerns the light bulb, that clichéd metaphor for innovation, which was itself an innovation in the 1870s.

The paradox is this. Nobody saw the light bulb coming. Nobody predicted its invention. Yet the closer you look at the story of the light bulb, the more inevitable

It seems that it was invented when it was.

Robert D. Friedel has concluded that there are 21 different people who can lay claim to having invented the light bulb more or less independently in the years leading up to its debut. Given that two of them had crucial assistants who did half the work, I call it 23.

Of course, Thomas Edison applied for a patent for the light bulb in November 1879. On February 3, 1879, Joseph Swan demonstrated to 700 audiences at the Literature and Philosophy Society in Newcastle the process of the whole lecture room being illuminated by a single carbon filament of a vacuum glass bubble.

There are also William Robert Grove, Frederick De Maurins and Warren Delaru from Britain, Marcelin Jobdal from Belgium, Alexander Lodkin from Russia, Henry Goebbels from Germany, Jean Eugene Lobell Udan from France, Henry Woodward and Matthew Evans from Canada, and Hiram Maxim and John Starr from the United States. And so on.

Each of these people produced and published the think of light emitting wires in glass bubbles before Edison, or applied for a patent on this idea. Some of these glass bubbles are vacuum, some contain nitrogen, and they basically invented the electric bulb independently of each other.

## **2. The Meaning of Synchronous Invention**

This is a very common phenomenon, called simultaneous invention. Almost every invention or discovery results in a dispute about who got there first.

In fact, the story of the light bulb does not explain the importance of the hero inventor, but tells us a contrary fact: Innovation is a progressive, incremental, collective but inevitable process. The electric light bulb inevitably emerged from the comprehensive technology at that time. Considering the progress of other technologies, it will certainly appear when it should, because it has matured. However, no one has foreseen this. How can innovation happen inevitably and unpredictably?

### 3. The Enormous Importance of Search in the Internet Age

But did I, or anybody else, foresee the immense importance of search in the era of the internet? Did we sit around in the 1980s saying 'if only we could have search engines'? No-no more than people sat around in the 1600s saying 'if only we could have steam engines, we could have an industrial revolution'.

Yet if Sergey Brin had never met Larry Page, we'd still have search engines. There were lots of rivals to Google. The inventors of the search engine, like the inventors of the light bulb, are all entirely dispensable individuals. Re-run the tape of history without all of them and somebody else would have done it.

I think innovation is the most important outstanding issue of the whole human society. We rely on innovation, but we cannot fully understand innovation, predict innovation, or guide innovation.

This incidentally is why the notion that we will run out of ideas or resources, or growth is so wrong. As I put it in *The Rational Optimist* (Ridley 2011): [1]

The wonderful thing about knowledge is that it is truly endless. Even theoretically, it is impossible to exhaust the supply of ideas, inventions and discoveries. This is the fundamental reason why I am optimistic. The information system is far more vast than the physical system, which is a wonderful feature of it. The universe of concepts is so vast that the physical universe is dwarfed. As Paul Romer said, a 1G hard disk can hold different software programs 27 million times more than the number of atoms in the universe.

### 4. Barriers to Innovation

I think the recipe for encouraging innovation is terribly simple. Seek out and destroy barriers that get in its way. Because there are always huge vested interests ranged against innovation. As Fredrik Erixon and Bjorn Weigel have pointed out in their book *The Innovation Illusion*, big companies and big public agencies do their best to protect their rent-seeking opportunities; they strive to stifle innovation every way they can (Erixon and Weigel 2016). Let me give two recent examples:

(1) Sir James Dyson invented the bagless vacuum cleaner. The German vacuum industry lobbied Brussels for the power consumption of vacuum cleaners (which were to be regulated to prevent global warming) to be tested in the absence of dust, because if there is dust around, the German devices work less well. In November 2018, Dyson won his case in court, but it took five years. Second, the pharmaceutical industry has lobbied hard- in Brussels and Washington mainly- for the regulation and restriction of vaping devices, to protect its prescribed patches and gums.

(2) As the late Calestous Juma (2016) [2] chronicled in his book *Innovation and Its Enemies*, in the past hansom cab operators in London furiously denounced the introduction of the umbrella. At that time, the British regarded the use of umbrellas as a taboo and considered the use of umbrellas as a symbol of weakness. The margarine invented in France in 1869 was vilified by the American dairy industry for decades. The New York Dairy Council thundered: "There has never been anything more deliberate and appalling than this margarine business." By the early 1940s, two thirds of the states in the United States had completely banned margarine on false health grounds.

### 5. Peer Review Punishes the Orientation of New Ideas that Deviate from the So-Called Consensus

Science too is full of barriers to innovation, such as peer review, and its tendency to punish new ideas that diverge from a cosy consensus. Consider a recent article detailing the long struggle that Robert Moir had to get his hypothesis about Alzheimer's and viruses taken seriously. Or the even longer struggle that Moir's mentor, Barry Marshall, had a generation ago to get the bacterial causes

of stomach ulcers considered. Marshall got the Nobel Prize-eventually. But it was uphill work.

The economist Alexander Tabarrok has shown that, by increasing research costs and delaying drug introductions, the Food and Drug Administration (FDA) quite plausibly costs more lives than it saves in the US. Brink Lindsey and Steve M. Teles (2017) [3] argue in their new book, *The Captured Economy*, that intellectual property, occupational licensing and government favouritism also do much to keep innovators out.

Patents and copyrights, originally intended to encourage innovation, have become far more often ways of defending monopolies against disruption. It is bonkers that, thanks to lobbying from the Disney Corporation, my heirs can earn royalties from my books till 70 years after my death. Let them get a job instead!

Cass Sunstein argues that when taken to an extreme, the precautionary principle is largely meaningless: both action and inaction create some risk to health, leaving little reason to choose between the two. The asymmetric nature of the PP is this: in an imperfect world, standing in the way of an innovation that might do good causes real harm. It's a version of Frédéric Bastiat's argument about the seen and the unseen.

What Britain needs to adopt in the wake of Brexit is the innovation principle [4] to balance the precautionary principle. This was proposed by the European Risk Forum [5] In essence, it says: examine every policy for the impact it could have on innovation, and if you find evidence that the policy is going to impede it, then rethink it.

Twenty-two chief executives from some of the world's more innovative companies signed a letter to Jean-Claude Juncker in 2014 asking him to adopt the innovation principle, and the Dutch Prime Minister, Mark Rutte, endorsed it during his country's presidency of the EU in 2016. [6] That fell on deaf ears, of course.

## 6. Major Threats to Innovation and Growth

Considering Ridley's argument on the social basis of innovation, as well as the social basis of intensive growth and the modern world, ideas, beliefs or public policies or laws that hinder or even prevent this process may produce (possibly unintentionally) results that prevent innovation. As I said, if the continuous innovation of modernity is not the inevitable result of certain factors reaching a critical level, but only because other structural forces that previously prevented such a take-off have been overcome, then we are likely to turn to the historical normal intentionally or unintentionally. The continuous innovation and growth in the past two and a half centuries will indeed be another episode in a longer history.

There are three forces that can cause this. First of all, the impact of laws and systems designed to encourage innovation in theory, but considering the understanding of innovation proposed here, these laws and systems will actually stifle innovation. Ridley's main example is intellectual property. Theoretically, patents and copyrights should encourage risky innovation by granting inventors a time limited monopoly right, which will generate monopoly rent (extraordinary income). To put it mildly, there are many problems. In addition to the philosophical problem that property rights are a response to resource scarcity and conflicts caused by it, although information is a rich and non scarce resource, this problem has some practical difficulties. The main empirical problem is that there is no clear evidence that patents have historically encouraged productive innovation. Ridley's theory actually leads to the opposite conclusion, that patents hinder innovation. If innovation is the product of thought exchange, the product of enterprising individuals' efforts to improve or transform what others have done before them. Any behavior that makes this process more costly and longer, or in extreme cases completely stops this process, will hinder innovation. At present, there is sufficient evidence to show that the intellectual property system advocated and

implemented by the United States, in particular, hinders innovation by copying and improving existing technologies. It also provides patent giants with a lot of rent-seeking opportunities. These patent giants only use patents as a means to increase income through vexatious litigation, and create a class of intellectual property lessors. They obtain wealth and income not through innovation, but through the monopoly granted by the state. In addition, intellectual property increasingly damages the real property rights of real physical goods by restricting owners from using physical goods in various intrusive ways, which also hinders innovation.

The second issue is attitudes, concepts and beliefs, as well as their politics in modern democratic countries. The challenge here is the persistence of fear and anxiety about innovation and the changes it brings, which leads to pressure from two sources to take measures to slow down or stop specific innovation, or even the entire innovation. The first comes from those who do fail in the impact of a particular innovation, or those who think they have failed, even if that is not the case.

The second is those who benefit from previous innovations or existing situations, and they worry that continuing to innovate will damage their position. Together, these two pressures, one from the threatened elite and the other from the broader mass movement, can produce a very powerful politics that deliberately tries to slow down or completely stop change.

## 7. Conclusions

So my message is that because innovation is a bottom-up evolutionary process deriving from dispersed knowledge, instead of messing around trying to find a magic way to create innovation, government should focus on removing things that stop it.

As long ago as 1662 William Petty, one of the pioneers of economics, pointed out in his treatise on taxes and contributions that:

The problem is thus in no way solved if we can show that all the facts, if they were known to a single mind ... would uniquely determine the solution; instead we must show how a solution is produced by the interactions of people each of whom possesses only partial knowledge.

Today, this is more true than ever. Innovation is a mysterious and under-appreciated process that we discuss too rarely, hamper too much and value too little.

Innovation is the need for a future, and innovation creates all models of the future. Innovation is to change the mode of innovation. If the judges can't understand, then I'm blind. First, let's talk about a digression. The ultimate answer of the universe is 42. The ultimate answer exists because the answer can answer all questions. 42 is SIR (Sir) 42 is FOUR TWO (Buddha) 42 is the beginning of life, the beginning of life and the end of death. The addition of any number and zero equals itself, and the multiplication of any number and zero equals zero. All things return to zero with two tones in one life, and all things return to zero with three in one ring. This is the starting point of everything. There is no zero. Everything has no value. Zero is not a number. It is the end result of everything. Innovation means going beyond everything and starting from scratch. Innovation needs to look ahead rather than backward. Looking ahead is to learn from the past, and looking back is to hesitate to look ahead.

Innovation should integrate all time and space material energy, and innovation should integrate time and space. Innovative business model is the scientific concept of development "market demand". Cultural economy (culture is the foundation of innovation and the driving force of economy). Sustainable development is the basic requirement for innovation. There is no scientific development without a scientific development concept, no economy without culture, and no development without sustainable development. Science is the only way for material development. Culture endows science with the idea of civilization. Civilization and culture are the only driving force for sustainable development. Science was born with time, which is the only material in the

universe. Matter is limited in the universe, so science has an end in the universe. Culture is all the space of the universe. Only the space of culture can give birth to material science. It is culture that endows material existence with value. Sustainable development is the energy of the universe, which shows that the energy of the universe is infinite. Looking at the future from the commercial space, our business does not lack science and culture. Our business lacks a sustained energy, which is a non-material spirit. The existence of commerce reflects the objective value of things. Business is the only standard for value appraisal. Innovative business model is to establish a new value, which is in line with the future development. This kind of value is the only standard for the value of the universe, and human beings are the only standard for keeping the value of this thing constant. Human development must first find the only value in the universe, and it must be human beings who set up this kind of value. The development of human beings is based entirely on human values. The value of human is that human life is infinite, but one life has only one memory. The new model is the existence across time and space. History serves the present, the present serves the future, and the future serves the history. The future creates history, the present changes the future, and the history is achieved.

## References

- [1] Ridley, M. (2011) *The Rational Optimist: How Prosperity Evolves*, London: 4th Estate.
- [2] Juma, C. (2016) *Innovation and Its Enemies: Why People Resist New Technologies*. Oxford University Press.
- [3] Lindsey, B. and Teles, S. (2017) *The Captured Economy: How the Powerful Become Richer; Slow Down Growth, and Increase Inequality* Oxford University Press.
- [4] Erix, F, and Weigel, B. (2016) *The Innovation Illusion: How So Little Is Created by So Many Working So Hard*. Yale University Press.
- [5] Hayek, F. A (1945) *The use of knowledge in society*. *American Economic Review* 35 (4): 519-30
- [6] Hayek, F. A. (1973) *Law Legislation and Liberty, Vol.1: Rules and Order*. London: Routledge and Kegan Paul.