Invention is not Innovation

Albert Meige * - *September 28th 2009.*

Following my article "what is Innovation?", I would also like to explain what an innovation IS NOT. In particular, I would like to show the difference between Invention and Innovation.

Two different Etymologies

Even if the two words Invention and Innovation sound alike, they actually don't share the same etymological Latin root:

- **Invention** is coming from "invenire" that means "find" or "discover".
- **Innovation** is coming form "novus" that means "new".

Two different meanings

In addition of not sharing the same root, Innovation and Invention have different meaning.

- **Invention:** new configuration, composition of matter, device, or process. Some inventions are based on pre-existing models or ideas and others are radical breakthroughs. Inventions can extend the boundaries of human knowledge or experience (Wikipedia).
- **Innovation:** An innovation is the implementation of a new or significantly improved product (goods or services) or process, a new marketing method or a new organizational method in business practices, workplace organization or external relations (Oslo Manual).

Innovation is not inventing, it is action

"Invention is the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out into practice." *Jan Fagerberg*

As professor Jan Fagerberg from the University of Oslo, wrote in his 2004 article "Innovation: A Guide to the Literature":

"An important distinction is normally made between invention and innovation. Invention is the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out into practice."

In other words, an innovation can be seen as the realization of an invention. While invention is to put together with creative idea, innovation involves an action on this creative idea. Through the realization, there can be societal benefit, commercialization, market entry or monetization. The invention becomes an innovation once it has had a tangible impact in the domain where it occurs.

Innovation may require several inventions

When you think about it, the first iPod that came out back in 2001 was not really an inventive product. Actually, MP3 players had already been around for a few years since the first MP3 player was put on the market in 1998. However, the iPod was the first to be really an innovation, the first to allow a successful transition of "new ideas into tangible societal impact". What made the first iPod truly innovative was a combination of elements such as its aesthetic design, its ease-of-use and most importantly the iTunes

software that allowed the user to manage and buy music online etc. (which is, by the way, how the music industry should have reacted when people started sharing music online, instead of fighting against it. But this is another story!).

Innovation DOES NOT require invention

When speaking about the first Personal Computer (PC) that was made by IBM one thinks about radical innovation. However, while the sales of the Apple II, made by the competitor of IBM, were dangerously increasing and while the IBM Direction did not take the PC seriously, the team that designed the first PC had been asked not to invent anything. The first PC that came out in 1981 was designed in less than a year, during the course of the so-called "Chess Project" with "off-the-shelf" components from various manufacturers and countries. This was completely new for IBM who used to have a deep vertical integration and had always developed their own components. This is the most famous innovation without invention (almost!).

Multiple and simultaneous inventions and single innovation

As a consequence of the difference between invention and innovation, many inventions where made simultaneously by several people, but each multiple invention resulted in only one single innovation (ex. Bell and Gray for the phone). In upcoming articles, we'll give a few stories about simultaneous inventions.

Your research has no value

As a researcher from the public sector, it took me a while to understand that all the great stuff that we were finding in the lab had no intrinsic value. Even if the technology that you have been working on for years is really revolutionary, it has no value. Even if it is patented it still has no value.

Your technology starts having value once you stick a business model to it. By doing this, you change your invention into an innovation. This reality can be hard to accept.

So, if you have some awesome technology in your drawers, don't wait until it's taken by some nasty company: create your own startup and stick a business model to it! (This was a short teaser on an upcoming article on public research and monetization of technologies.) Another way to increase the value of your knowledge and your technology is to register on PRESANS and become an active member.

Conclusion

1. Innovation is not invention,
2. Innovation can require several inventions,
3. Innovation does not require invention,
4. Inventions can contribute to innovation.

*** Albert MEIGE**

- Winner of the École Polytechnique prize for innovation
- A researcher in the Plasma Physics Laboratory (LPP),
- Was awarded the 2009 École Polytechnique prize for innovation in the "business start-up" category. The École Polytechnique, particularly through its Department of Industrial Relations and Partnerships, and the CNRS are major partners to the initiative.