PREFACE

How Air Surveillance Radar was Invented

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Do you know how air surveillance radar came to exist? It's sort of a famous story.

In 1922, two American scientists were testing a shortwave transmitter and receiver. During the testing, they found waves were disturbed when cars ran across the test field. At first, they thought it was a nuisance, but they stood it on its head and came up with an idea to utilize the disturbance to invent a radar. They began to use it for safe maritime traffic control in ports. In 1934, Britain launched the development of air surveillance radar for military purposes and completed it before World War II. On the other hand, in Germany, Hitler stopped the development of a similar radar because he considered it "useless for military strikes". The difference between these two perspectives may have determined the outcome of the war.

It can be said that it was the positive viewpoint and perspective of utilizing the nuisance that led to the great invention.

These days, even though the significance is different, inventions and new products born from innovative ideas can be found everywhere. For example, the following products are listed on the Nikkei[1] semiannual hit-product ranking for the first half of the year 2007.

Yokozuna[2]
- Downtown landmarks (Tokyo Midtown, Namba Parks, etc.)
- Electronic money

Ozeki[2]
- "Wii" by Nintendo
- "Mega Mac" by McDonald

Maegashira[2]
- "Frixion-ball" (erasable ballpoint pen) by Pilot

Among these, Ozeki ranked game console, the Nintendo's "Wii", with which users play and enjoy games by swinging a remote controller, changed people's mindset about remote controllers. The Pilot's "Frixion-ball" pen using ink that is erasable by frictional heat (at 65℃ or more) defied the common wisdom that "letters written with a ballpoint pen are inerasable". Besides those listed above, the "refrigerator with a warm compartment" by Sharp is also one of the hit-products these days. Surely, it is convenient in winter for users who buy warm food / drinks to keep them warm. Only an idea

beyond the general knowledge could have made it possible to come up with a refrigerator, an appliance to cool some things, incorporating a warm compartment.

These products are the embodiment of dreams wishing that it would be convenient if something were to exist. However, such ideas rarely become reality because consumers and developers tend to have stereotypical images and assumptions saying that, "It is impossible". New ideas and different perspectives in the marketing and development stage led to these hit-products. The advances in technologies and development of new materials helped some of them be commercialized. However, we need to keep in mind that a lot of products are developed by combining existing technologies.

Then, how can we generate new ideas?

Some ideas are triggered by inspiration like the above-mentioned air surveillance radar. If we were a genius like Edison, we could have ideas one after another. Unfortunately, we are not Edison. Therefore, it is good for us to use approaches (methodology) such as brainstorming, KJ method, morphological analysis(3), etc. For example, those methods are often used at idea meetings (for naming or for sales promotion and marketing) of advertisement agencies. I have heard that a product name is usually chosen from among some hundred candidates, and that the idea of the refrigerator with a warm compartment was emerged at an in-house idea meeting. FUJITSU TEN uses those methods, too. We ask ourselves, for example, what an ideal car navigation system is, or what is needed to make new functions to be realized. One method is to walk around streets to find some clues for new ideas. Another is to check excellent products of others. I will give you one example: Ford's mass production method using the belt conveyer system. The idea was conceived from a slaughtering process in a slaughterhouse. When I think about a new plan or try to solve a problem, which, although, is not the case with development of a new product, I develop ideas or organize issues from the viewpoint of 5W1H (when, where, who, what and how) or 4M+1M (man, material, machine, method plus money (or cost)).

I am sure it is important to clarify our challenges and keep thinking about them whatever method we use. When a hit-product developer tells the story about a development, he/she almost always says, "I was thinking about it all the time. It was my dream for a long time." He/She was able to see something and come up with the idea only because he/she kept thinking about it all the time. The secret of "coming up with an idea" might be to chase a dream, keep passion alive, and never give up. I hope pioneering technologies will be developed and hit-products will be created with wonderful ideas in the future.

Note (1) The Nihon Keizai Shimbun
(2) Ranks of Sumo wrestling
(3) Some people in a group put up ideas about a designated theme or come up with ideas as much as possible by using figures and/or tables.