How our big data can save lives with health data

Science, Computer Science

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Big data can serve companies and large investors to earn more money. That reach more customers or identify market trends before anyone else. It is enough to remember that peculiar data analyst played by Christian Bale in the movie ' The big bet'. Let's remember, we are in the years before the Great Recession. The expert embodied by Bale, one day, is dedicated to look in detail and compare the behavior of mortgages in the years before the real estate crisis in the United States. Of course, realizes that the system collapses in a matter of time. Crossing data here and there, see before anyone else that a legion of homebuyers in Florida or California. In simply the huge amount of money will not be able to return as they asked the bank to acquire their overpriced homes.

Of course, both the character of Bale (in fiction), and his reference in real life, became billionaires. Thanks to the big data, they were able to predict the future, and that is a lottery. However, big data does not only serve to amass a fortune. It can also save lives and serve to better hospitals and health spending in general. A very basic example will suffice to understand it. The searches that millions of people do on the Internet (on Google, Wikipedia or on social networks) at a given moment about a medical condition can help detect a pandemic in advance. In this way, the authorities can react and collect vaccines in time or establish a safety belt to prevent infection. A study by the University of Valencia revealed a few years ago that the analysis of the data offered by platforms such as Wikipedia on influenza cases hardly differ from the official ones. In addition, it is convenient to bear in mind that the internet gives its information " almost in real time", which is vital when it comes to addressing a health problem of significance. Thus,

some argue that the big data could have prevented the widespread alarm about the pandemic influenza in 2009, the famous swine flu. It must be remembered that on that occasion the management of organizations such as the WHO or the ministries of health of various countries, supposedly influenced by the economic interests of the big pharmaceutical companies, was questioned.

The Case of VIOXXBut there are strong examples that big data has already saved lives. One of them happened at the beginning of this 21st century. At that time, Vioxx, a state-of-the-art analgesic developed by Merck, became a bestseller of medicines, with annual sales of more than 2, 500 million dollars. Everything was going great for Merck with this anti-inflammatory until Kaiser Permanente, a California health consortium, together with the FDA, the agency of the US Government in charge of ensuring the safety of medicines, resorted to data analysis techniques that revealed a truth disturbing. Reviewing the clinical history of more than one million patients treated with Vioxx, they found that the likelihood of having a heart attack tripled in those patients. As a result, Vioxx's success story came to an end. However, big data prevented many people from dying due to the cardiovascular risks of the medication. Big data applied to medicine can predict the evolution of pandemics and take drugs with lethal side effects from the market. It has also facilitated DNA sequencing in recent years. It can also help improve the management of the health system in general. If the health system were able to properly store and process all the information it generates (from doctors' handwritten notes and patient impressions to histories and treatments),

professionals would be able to fine-tune individual diagnoses and in solutions to collective problems.

The Doctors and The Big Data On A Small ScaleIn other words, the technology could raise on a large scale what individual doctors already do every day in their practice. Moreover, a doctor performs a diagnosis and prescription based on their observations. Also of the episodes that are repeated among their patient base. After all, a part of their professional praxis is based on a sort of rudimentary statistical analysis, of big data on a small scale. Another reason to think that big data with AI will be key in the medicine of the future. The avalanche of all kinds' devices now generate medical data and that will exponentially multiply the available health information in the future. We talk about the sensors and devices that will inform medical professionals from home or in the hospital, through apps on the smartphone, for example, of the most minimal changes in the evolution of diabetes, hypertension or cholesterol. It is the Internet of Things applied to the world of health care.