

Big data

A perspective on Cellout.me by Sander Klous, managing director KPMG Big Data Analytics and Nart Wielaard, writer/advisor.

The question: “What is Jeroen’s DNA profile worth?”

The simple answer: right now, 0 euros.

Jeroen’s DNA profile has no monetary value at this moment. It will only be valuable if Jeroen finds a way to get another 100,000 people – or preferably, even more – to offer their DNA profiles for sale. Commercially speaking, you can’t really do anything with the data that a single DNA profile provides. However, this changes if you know how that DNA profile differs from the average profile. If you have this knowledge, you can, for example, find out what type of DNA profile is especially suitable for the highest level of endurance sports, or what type of profile has an increased risk of a certain disease.

However, at this moment, in the collecting phase, we don’t know if Jeroen’s DNA contains any relevant deviations. Let’s assume that Jeroen indeed finds a way to bring together a collective of people willing to sell their DNA profiles. Commercial parties will come forward to exploit the information gathered from these profiles. In this phase, each DNA profile will have the same value, because the buyer does not know which profiles deviate from the norm, and are therefore potentially useful for exploitation. The buyer doesn’t really know what he is purchasing.

This changes (radically) as the buyer builds up a larger database, and if individuals know or suspect that their DNA contains a certain deviation. Take, for example, the extremely talented sprinter Dafne Schippers. The DNA of the fastest woman in the world may provide insights into how this natural predisposition for speed and focus might be determined. If we have this information, we can perhaps already identify the next Dafne Schippers. And what about cancer patients? Insight into the deviations in their DNA could make it possible for us to detect cancer early on in people with similar profiles. The profiles that have no deviations are practically worthless in this phase: these exist in abundance. And scarce goods are often more expensive, regardless of whether these deviations are positive or negative. It is simply a matter of market forces.

In the case of deviations in our DNA, we can take this one step further. Scarce goods are usually more expensive, but that is only valid to a certain extent in this case. Say that, on the basis of DNA analysis, we are able to detect early-stage

cancer in 10,000 patients. This is valuable, because it enables us to save 10,000 lives. But if the deviation is so specific that we can only detect it in 15 patients, it suddenly becomes much less interesting; only a very small group of people benefit from this discovery. Both supply and demand, then, are determined by the scarcity of the deviation, and if the demand is too low, the market value is not worth the investment.

The value of your DNA, then, depends on the following question: do you know how much your DNA deviates from the average profile? Profiles without any important deviations as well as profiles with very unique deviations are likely to be worth less. Should we ever get to a phase where we are able to manipulate DNA and its associated personality traits (a phase where this is ethically acceptable), these unique deviations logically will become more interesting.