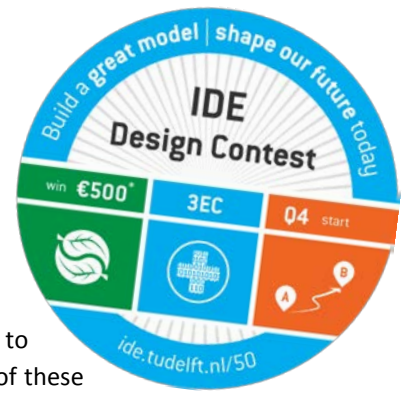


The future of health



You've just stretched out on the sofa when your virtual personal assistant pops up. Based on the constant data stream from your implanted chip, and all the products around you that you've interacted with, including your fridge and your bike, the assistant concludes that you're not getting enough exercise and that your heart rate and blood pressure are a little on the high side, given your genetic history. Throughout your life, these data are stored directly in your 'smart/digital twin', which is used to calculate the health of your virtual self in the future (in five years' time). With the aid of these data, a diagnosis can be made before the first symptoms even appear – supported by artificial intelligence.

Your doctor? That's someone you've never actually seen; your doctor is your coach in the cloud, who, together with your virtual assistant, comes up with the best advice for you in view of your personal preferences and interests. Together, you devise fun challenges that you have to carry out in your holodeck (3D virtual-reality room), and better 'food cartridges' for your 3D food printer. Your robotic dog will also demand more attention from you and start taking longer walks.

Our health is changing: people are living for longer, the number of people with dementia is rising sharply, and serious conditions, such as cancer, heart and vascular disease, are chronic rather than life-threatening.

In the hospital of the future, patients will be admitted shortly before an intervention and then receive care at home. This will place high demands on the care network around a patient and the possibilities of adapting this to the home setting. The focus will increasingly be on the patient, and care will be adapted to the patient's wishes and needs.

Healthcare costs and the shortage of personnel are already proving problematic. In the future, we will therefore see all kinds of attempts to achieve sustainable and better healthcare (and thus more healthy years of life) for all. Are developments such as remote care, robotisation and 'Do it yourself' a solution to this?

From doctor to robot?

The technological developments within healthcare are arguably the most revolutionary of all. Whereas technology and medicine are already collaborating more efficiently and undertaking joint projects, in future, medical technology will become a self-standing discipline. Telemedicine. Wearables. Implants that relieve the effects of epilepsy and Alzheimer's, and bio-printers that can print organs. The electronic pill that knows how you're doing, and personalised medicines from a 3D-printer – ready while you wait. Care-robots and robots that can carry out operations with the utmost precision.

Prevention will play an increasingly important role in our health in future. Whereas the care system is currently focused on treating the sick, in future the focus will be on preventing people from falling ill. Health, not illness, will be the point of focus. Healthcare will literally be overturned: GROZ (a new initiative from the Life Sciences & Health Top Sector). Personal data will play a crucial role in this. In the future, implanted chips and other smart measurement devices will provide an overwhelming flow of data that will allow us to monitor our own health, and that could predict when someone is going to fall ill or die.

Medisign

Dealing with this growing flow of data will be a great challenge for the designers of the future. Which resources will be used to gather what data, how will we process them, to which requirements will they be subject, how to determine their relevance, how to communicate this in a personal way, and how to deal with this? How can we ensure that data are stored securely, but remain accessible? How should we handle ethical criteria? Moreover, what new interfaces will be developed, how can behaviour be influenced, and how can you give confidential advice when there's no human-to-human contact? These are all interesting issues regarding which today's designer can offer added value to human health in the future.

