CASE STUDY. APPLE WATCH AND THE NEW ERA OF CONNECTED BODIES

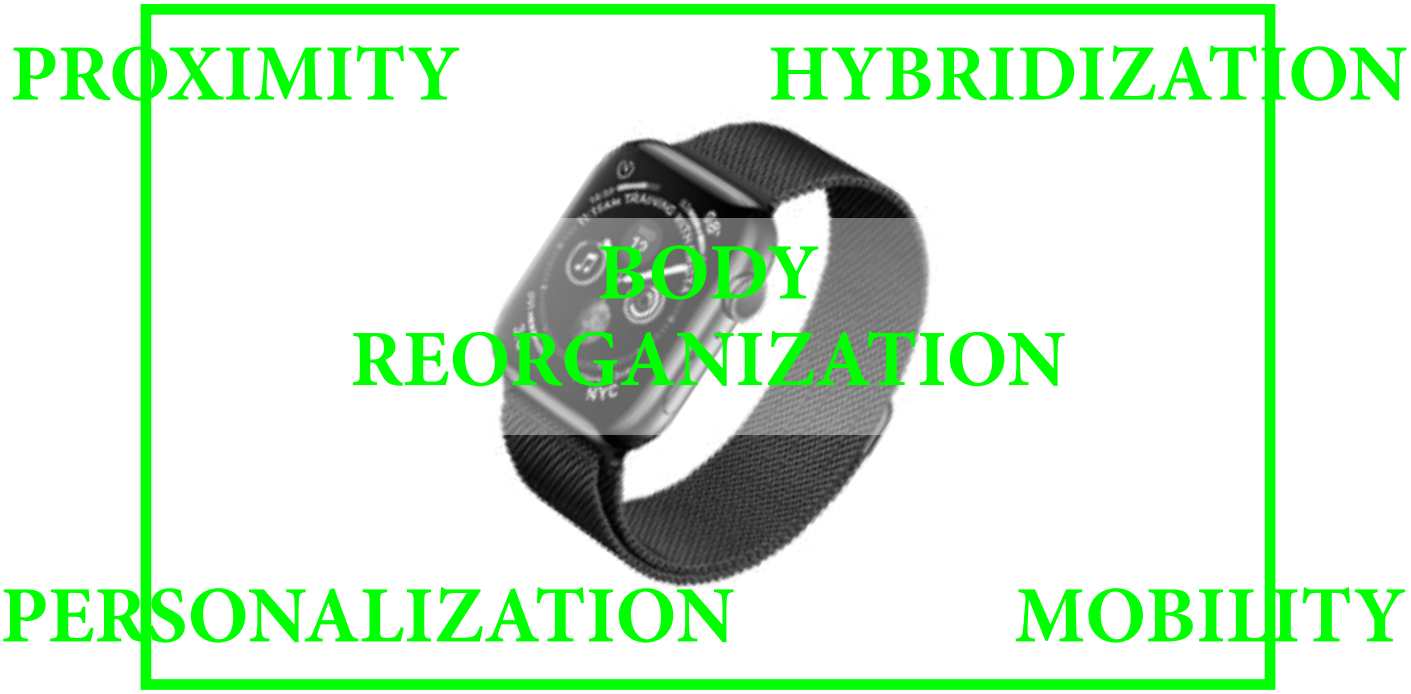
We live in a hyper-connected world where our physical and psychological dependence on technologies becomes an integral part of modern society. Our relation to the body as a biological entity evolves with time. Some claim that we now step into a new era of transhumanism, seen as a next stage of human evolution, which asserts that human race can evolve beyond its current mental and physical limits through science and technology. All the innovations, such as artificial organs, genetic modifications, quantification and connection of our world via the Internet of Things (IoT), highlight these changes. As technology advances, so does our vision of the future.

We are still far from becoming cyborgs, however at the time when connected objects are democratizing and offering more and more features, it seems obvious that the elements of human physiology will sooner or later be improved by the Internet of Things. In the same way, the ubiquity of smartwatch is a significant factor in the modern development. With the example of different wearable devices that have taken a strong position in this game of future development, and in particular with Apple Watch, this case study aims to show how smartwear redefines our relation to the body today.

TECHNOLOGICAL REVOLUTION

Californian tech giant Apple is ubiquitous, conquering different sectors of current market with its revolutionary devices. Their new gadgets are born out of innovative strategies and pragmatic planning. And connected objects are no exception. Apple Watch spells efficiency with a capital 'E'. This compact device needs nothing more than just a little space on a wrist. According to a study published by Strategy Analytics, Apple Watch has taken a global leading position in today's market. While the company does not publish sales figures for its Apple Watch, Strategy Analytics has estimated that turnover for this particular connected watch leapt by 59% year-on-year in the first quarter of 2017, with 3.5 million units sold.

Apple Watch becomes a mainstream cultural object, a product that enables humans to have a different approach to their bodies. It's a perfect marriage between innovation and self-awareness. By helping perform numerous tasks with high efficiency, the wearable meets the desire to stay connected with the world and take control over the inner processes of a body. Not only it's a perfect gadget for sports geeks, passionate about body-monitoring, but a totally new model of health, new practices at work and a new insurance systems. For instance, the incentive for self-quantification from insurance companies is becoming increasingly commonplace in the United States, and companies are ingeniously competing to monitor the "physical database" of their employees.



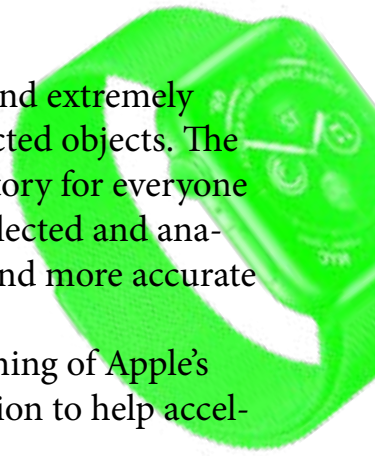
OBJECTIVES

Beyond the technological and esthetic reflections, Apple Watch conceals a much deeper debate. The three main points I would like to draw attention to in this case study are the main functions of this watch, related to:

- the monitoring of our physical activities
- the change of our perception of the body on a daily basis
- the ethical issues it arises

APPLE WATCH KNOWS US BY HEART

With this recently emerged category of connected objects, the Apple Watch contains a "HealthKit" which is also integrated within other Apple products. The Watch plays a role of a medical device, with a health sensor that allows to take an electrocardiogram, known as "ECG", that measures heart rate and notifies you if it detects the presence of atrial fibrillation. By putting a finger on the digital crown, the Watch passes a current across the chest to track electrical signals in the heart. It is said to be far more accurate than interpretations based on pulse. The process is meant to take about 30 seconds after which the user receives a heart rhythm classification. ECG is a serious feature and a revolutionary step in the field of connected objects. It can be used to diagnose and monitor heart diseases more accurately. Since heart disease is considered to be one of the most common causes of death around the world, Apple plays a crucial role in the field of life improvement.



Besides, the non-invasive blood glucose meter, which is vital for diabetics and extremely useful for everyone else, makes yet another revolution in the field of connected objects. The possible democratization might make the wearable health bracelets mandatory for everyone in the near future. This will increase the amount of bio-data that will be collected and analyzed on the scale of all mankind, which will then lead to better diagnosis and more accurate prescription of drugs.
Even though these changes will occur gradually, this is likely just the beginning of Apple's dive into health monitoring. It seems that the company has a serious intention to help accelerate the expansion of a new form of relationship to our body.

There are several key aspects of future medicine:

- personalized treatment
- individual diagnosis
- creation of new medicines using artificial intelligence
- robotization of surgery and therapy
- supervision of digital platforms for recovering patients after a surgery or an illness

THE MEDICALIZATION OF LIFE

Even though Apple watch does not yet fulfill all medical functions, it makes an undoubtedly decisive step towards the medicalization of our existence, which will likely make a huge impact on people's lives. We are now to give much more space to medicine in our conception of health, which was theorized as early as the 1970's by the philosopher Ivan Illich in his study called "Medical Nemesis". It makes us wonder whether health and medicine are necessarily linked, since by transforming our body into figures, data, graphics, medicine might distance us from an immediate relationship with ourselves.
This medical vision of the body has actually become so common for us that we do not even pay attention to it anymore. Everyone speaks as if he were himself a doctor: "My cholesterol, my echo, my colo, my fibro, my mammo, my MRI, my PSA ... me!" It is the medical reference that constitutes the new identity of the body.

SELF QUANTIFICATION

Vincent Billard, a professor of philosophy in Paris, is particularly interested in the analysis of new technologies. In 2011, he devoted a book to Apple's philosophy, calles "iPhilosophy" in which he developed his theory through the prism of transhumanism. He is talking about what we now call the *Quantified Self* (QS), which can be understood as the systematic measurement of our own body. Not only it allows to measure your heart rate at any time (as does Apple Watch), but centralizes in just one application all the quantifiable assessments of our various activities, such as the number of steps taken during the day, the number of hours of sleep, the number of calories burned, the weight curve, the blood sugar levels, etc. This quantification practice relates to the more general concept of m-health, or *mobile health*.

Main focus of the Quantified Self:

- Health data, nutrition, physical activity
- Lifelogging, life-caching (collecting and displaying one's entire life), life-streaming
- Digital information on the body
- Biometric data
- Self evaluation

Some might see it as a negative impact on the society, that already bursts with personal data. The watch offers different applications, one of which gives a possibility to share their health data on social media. By spreading these self-centered evaluations on the social networks, there are dangers related to the disclosure of this personal information to organisms ready to make them fruitful. All this is true, but there is much more to it. Apple Watch democratizes the use of medical devices, and allows us to discover a new way of acting with digital technologies, by making them ultimately more playful and useful in our daily lives. Since a wrist is the most practical and "natural" body part, the smartwatch makes it easier to stay connected, by giving a sense of proximity, constant presence and intimate connection with our bodies.

Yet Jean-Paul Sartre in his famous book called "Being and Nothingness" has already shown that there are two very different ways of apprehending our body. There is our own body seen from the inside, so to speak, from our inner point of view. Meaning I can touch my hand, which will lead to a set of sensations, or walk barefoot on an ice-cold floor, etc. And there is the body seen from the outside, as an object among other objects, as it is perceived by medicine.We can of course sometimes see our body as well (while seeing a radiography or checking a blood test), but for Sartre it remains an exception.

> The Quantified Self is exactly the way of mixing the two, or rather not looking at the body, and then the health, with the eyes of medicine and mathematics. Since it requires sensors and a tracking system of body activity, this is precisely the focus of Apple Watch and its HealthKit that centralize all the necessary bio-data.

MARKET POSITIONING

"The Apple Watch is not just the best-selling smartwatch in the world, it's the best-selling watch in the world."

This bold statement was made by Tim Cook, CEO of the Cupertino company, during the presentation of the Apple Watch Series 4 at the 2018 keynote of Apple. Without any doubt, Apple Watch has firmly established its leading position in the market of smart watches, however other tech companies are trying to keet up and suggest their vision of wearables, often less expensive and sometimes as innovatiove as Apple.

APPLE WATCH SERIES 4

Starting at 399$ to 2299$

Compatibility	iOS
Heart rate	Yes
GPS	Yes
LTE	Yes
Battery Life	18 hours
Payment System	Apple Pay

FITBIT VERSA

Starting at 199,95$

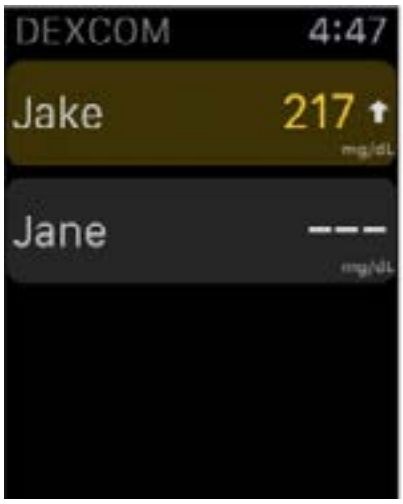
Compatibility	iOS, Android
Heart rate	Yes
GPS	Connected GPS
LTE	Yes
Battery Life	4 days
Payment System	Fitbit Pay

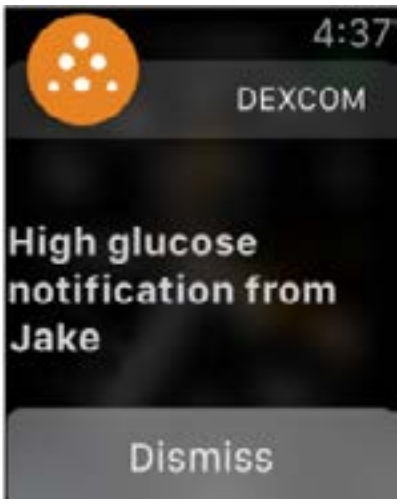
SAMSUNG GALAXY WATCH

Starting at 329$ to $379

Compatibility	iOS, Android
Heart rate	Yes
GPS	Yes
LTE	Optional
Battery Life	4 days
Payment System	Samsung Pay

Apple Watch Series 4 is the leader of the market in 2018. It has a big display, a Raise to Speak Siri, an ultra-fast processor, a built-in electrical heart rate sensor for taking on-the-go electrocardiograms and a fall detection. It also runs watchOS5, which makes the watch even more useful with automatic workout-tracking, offline podcast playback and a Walkie-Talkie voice chat feature.





Fitbit Versa (starting at $199,95) . Even though the watch was a sector leader for a couple of years, it has fallen to 3rd place, with sales down 36% in the first quarter of 2017, due to a slowing demand for fitness trackets. However, the company is trying to catch up on a medical functions in their smart device, in order to use Fitbit devices in the health care and insurance systems. Versa watch exceeds Apple's sleep analysis and battery performance. However, its less esthetical design and the lack of variety in sizes and prices, bring the Apple Watch on the fisrt place.
According to the Strategy Analytics specialist Cliff Raskind, "Fitbit lost first place to Apple due to a slowing in demand for fitness trackers, and also since they came late to the connected watches market,". " Fitbit's deliveries, revenue, prices and profits are all slipping at the moment and the company is going to have to put in the hard yards if they are going to turn the corner this year."

Samsung Galaxy Watch (starting at $329), a Tizen OS watch. It is considered to be a favorite smartwatch for Android users. Apart from the up to four days of battery life and a beautiful design, the Galaxy Watch has got a built-in GPS, a heart rate sensor, water-resistance, Samsung Pay support, and a nifty rotating bezel for navigating the interface. Furthermore, you can download music from Spotify to the watch for offline listening. The obvious flaw is that you get far fewer apps than you would on an Apple Watch.

ETHICAL ISSUES

If technology can improve our lives, it is important to measure the ethical consequences of technological changes related to the human body. Transhumanism, including smart objects, could inaugurate a new golden age for humans, but can also lead to an inexorable fall.
The rationalization of the body and its inner processes comes at the expense of neglecting our deep nature and the connection with the mind. Furthermore, by putting forward the idea of fitness and physical measurements that are supposed to maintain the health of our body, Apple Watch reinforces the pressure exerted on us, along with the urge to constantly monitor ourselves. This obsession with health becomes unbearable and destructive for some individuals.
A French philosopher Claire Marin, in her recent work "Man Without Fever", denounces the fact that even though health has become a social injunction, it must still be the subject of attention, effort, and hard work that requires doing sport, maintaining healthy eating habits, etc. But paradoxically, behind this 'duty' of fitness, it is the obsession with the potentially hiding disease. Thus our over-medicalized world becomes obsessed with the fear of physical failure. Moreover, with this medicalization of an everyday life, it is difficult to deny that this phenomenon institutes in some sort a duplication of our relationship with ourselves. As Claire Marin once said:

"We become more and more familiar with a double representation of our body: an immediate sensitive approach and an anatomical image (or any type of medical imagery) that medicine now juxtaposes on this first layer of ourselves."

CONCLUSION

In order to have a healthy interaction with our body and the environment, we need more surveillance of the inside processes that often tend to get influenced by different external stimuli. Nowadays we get more and more detached from our true nature, distracted by constant flows of information and dynamic motion of urban surrounding. While being absorbed by this 'noise' of everydayness, we sometimes forget about what is really important: our health. Apple Watch plays an important role in the process of body reorganization, expanding our physiological limitations and giving a different perception of the inner self. Not only does it fit a whole digital world on a wrist, allowing us to stay connected at any moment, but also has a great potential of changing the notion of "human" in the next few decades thanks to its medical innovations. Smartwear offers a greater freedom of movement, guiding us throughout the day, giving a power of effortlessly slipping between the biological, the mechanical and the virtual modes. On a cellular level, a body is able to detect pathological changes, chemistry and temperature in the circulatory system. However, it can not manage to overcome these changes, unless we have an early alert warning system that resides within the body. What smartwear really does, it provides the way of monitoring these potential dangers. The Watch becomes the intelligent guardian of our health. It isn't trying to eugenically improve our bodies, but rather to make them function in a better, more efficient way. The question is whether or not we can rewire the human body inside-out, redesign it. As soon as it gets possible, it will become the best strategy to increase the longevity of the body, to increase its robustness for protecting it against certain pathologies.

NOTES:

1. Vincent Billard, *"iPhilosophie. Comment la marque à la pomme investit nos existences"*
2. Ivan Illich, *"Medical Nemesis: The Expropriation of Health"*
3. Interview with Stelarc: https://www.singularityweblog.com/stelarc/
4. Nanotechnology behind the evolution of iPhone: https://the-gist.org/2016/08/nanotechnology-behind-the-evolution-of-iphone/
5. Yet Jean-Paul Sartre, *"Being and Nothingness"*
6. Gilbert Hottois, *"Le transhumanisme est-il un humanisme ?"*
7. Claire Marin, *"Man without fever"*

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