



## Human Enhancement

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Human enhancement and Innovation Ethics.

**Future scenarios & industries →**

Enhancement in the world of tomorrow.

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Discover opportunities and risks with ethix.



We already live fully in a world of human advancement. Thousands of startups and companies are looking to improve human performance. Functional food, robotics, gene therapy, artificial intelligence: entire economic sectors are focused on this ambition for improvement.

These economic sectors are at the heart of the ethical ambivalence that marks innovation. They carry enormous hopes, while facing serious ethical risks. They confront societies with fundamental questions.

## The issue

### Why undergo enhancement?

#### Enhancement as therapy

When the body does not fulfill those functions which are considered to be “normal”, we try to repair it or rectify the issue. We put on glasses, we take vitamins, we fix a broken arm. But how can we clearly distinguish between repair and unnecessary increase? What are the “normal” functions of the body? What should we accept without trying to correct it?

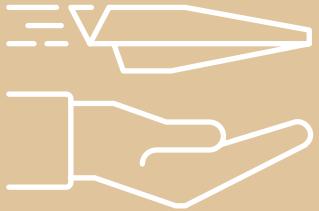
#### Enhancement as a supplement

Enhancement may be similar to a toolbox with new features. We can dramatically increase our muscle mass, we are working on new organs, we will soon be able to ingest robotic micro-organisms. Where does this ambition to add new parts to the human end and where does dehumanization begin?

#### Enhancement as a quality of life

Enhancement can be above all a search for a better quality of life. Enhancing oneself to simply surpass oneself makes no sense, one must aim to improve to create a better way of living. But what is the best way to live life? Does this desire to improve the quality of life have any limits? Is it a societal issue or a question in which everyone is free to judge their own improvements?





## Economic sectors

The question of human improvement concerns a growing number of economic sectors. The question has long ceased to be reserved for the traditional branches of medicine. These sectors include:

Food technology  
Life sciences and pharmacy  
Preventive medicine and gene therapy  
Robotics  
Cognitive development, artificial intelligence and big data



## Future scenarios

The military industry has popularized the idea of super-soldiers who are capable of, strictly speaking, superhuman exploits. Products and instruments developed by the military sector are now available to the general public. They massively reinforce inequalities within societies and between countries. The augmented world is a fragmented world.

It is absolutely normal to take food supplements that significantly improve our cognitive abilities. A resistance movement advocating the disengaged human tries to raise awareness of the relevance of our limited and fallible human nature. But the vast majority only want one thing: better medicines to improve their faculties.

The project of fully integrating tools for improvement directly into the human brain is reaching maturity. The human brain is modular, and we can choose which skills we want to acquire from a catalog. The question of the distribution of the right to be increased is at the heart of our political agendas.



Futura Sciences:  
Avec Neuralink, Elon Musk  
veut relier nos cerveaux à des  
machines

Le Monde:  
Athlétisme : le cas Pistorius,  
question scientifique ou ques-  
tion éthique ?

Independent:  
Prosthetics: Amputee James  
Young unveils hi-tech synthetic  
arm

## Ethical risk zones

Technological advances confront us with a series of major ethical risks:

### The questioning of “natural” boundaries

The questions related to human enhancement are addressed in the light of categories strongly rooted in societies: the distinction between human and machine, between sick and healthy, between able-bodied and disabled, between natural and artificial, etc. The technologies under development challenge these categories head-on.

### The headlong rush to a dehumanized human being

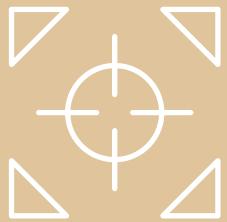
If a startup's activities touch on human performance, it must be ready to answer the question of the type of human it wants to make possible: what is the startup's vision of what makes a human? Does it participate in a movement that wants to create a human being who is enhanced to

the point of dehumanization? How can it deal with the fact that each innovation, taken for itself, is not necessarily problematic but cumulatively create a scenario which raises serious ethical questions?

### An increase in massive inequalities

In the short term, innovations in enhancement reinforce some inequalities. Because of their financial cost, they are often de facto reserved for those with significant resources. How should a startup position itself in the face of this criticism of the reinforcement of inequality? Criticism of this type of product arises from citizens' concern for the proper functioning of society within a country, but it also concerns international relations. Does the arms race continue as a race for improvement?





The field of Bioethics has formulated a set of principles to help us assess questions of enhancement.

#### Health

What are the risks associated with enhancement?

#### Justice

Who will have access to these new technologies and improvements?

#### Autonomy

Will we be free to choose to increase our autonomy? Can we refuse an innovation in "improvement"?

#### Charity

Will we be able to live a better life?

# Focus

These ethical risks are addressed by different groups that may be classified in the following way:

#### The Bioconservatives

Bioconservatives are very sceptical about the medical and technological transformation of our world and of the human being in particular. They believe that nature defines some of the elements that make up our humanity. We cannot change everything and we must accept these limits. A precautionary principle is required of us. Otherwise, we risk committing the error of the "hybris" and considering ourselves to be God.

#### The Transhumanists

For transhumanists, the human species has not reached the end of its evolution. Humans must take control of their destiny through science and technology. Suffering, illness, aging, and involuntary death are undesirable.

Transhumanists are happy to talk about mortality. They know very well that death will always be present (suicide, accident, entropy of the universe). They seek to live as long as possible in good health. To this end, they are ready to question the foundations of humanity.

#### The Bioliberalists

For bioliberalists, there is no reason to prohibit an enhancement innovation that meets certain criteria. These criteria relate to the informed consent of individuals and the inequalities that could result from these enhancements. For bioliberalists, the question of fair access to enhancement, in relation to equal opportunities, is essential.

#### The Posthumanists

For many, posthumanism is seen as the result of the transhumanistic idea. In order to be able to live for as long as possible, humans will have to take a different form than the one they have now, and they could become "super-human". For others, posthumanism is about ceasing to think that the human being is the center of the universe. Posthumanism then considers the post-human, seeking harmony with other species and "Life" in its different forms.





These technological advances all refer to a fundamental question that affects our humanity: what kind of human being do we want to cultivate, individually and as a society? The way we approach this essential issue says a lot about how we see human nature, its place in nature and its relationship to technology.

## Looking forward

We navigate between two major narratives to sketch out answers to our future humanity.

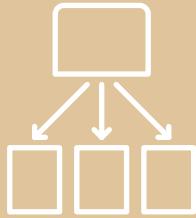
### Human nature as a competition

Humans want to surpass themselves and go beyond the limits of their own existence. The human being is in constant competition. At first with himself, with others, and with nature, but now also with machines. Humans have always been caught up in a frantic race to remain competitive. Today, this competitive human being wants to advance to remain «master and possessor» in a world whose pace is accelerating. He is ready to move away from his human condition to become more and more machine and thus remain in a position of strength. The machine threatens us, but it also represents a way of evolving towards an ever-improving Man.

### Human nature as a collaboration

Humans are not only competitive. They have a great ability to collaborate with not only members of their own species, but also with other species and non-human beings. As Man can collaborate with nature, and not only dominate it, he can also cooperate with machines. Humans will change in a specific way, thinking above all of the ways in which their enhancement is complimentary to the advancement of machines and other living species.





Thanks to the instruments developed by ethix and its partners, you are able to integrate the ethical challenges of human enhancement. You transform ethical risk areas into opportunities.

## ethix resources

### ethix Mapping and ethix Canvas

A first approach to clarify the ethical risks of your AI

### ethix workshop

An in-depth analysis of your AI set-up (test data, calibration)

### Internal training

An opportunity for your team to improve its ability to meet ethical challenges (communication, HR, strategy)

### Labels

Implementation of labels guaranteeing the programming and ethical use of AI

