



Promoting ethics for human enhancement technologies

SIENNA project Policy Brief #5

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Highlights

This brief addresses the need for policies aimed at ethical guidance for research, development and deployment of human enhancement technologies. We recommend:

Promoting the use of **ethics guidance** and related instruments for interdisciplinary enhancement fields, such as ethical frameworks and guidance.

Creating a European **expert body to oversee and analyse trends** in human enhancement, assess moral and social consequences and provide information and policy advice.

Reviewing how European research funding organisations and research ethics committees devise **funding and approval policies** for (potential) human enhancement research.

Addressing the status of human enhancement in the field of medicine, including **whether human enhancement can or should be considered part of medicine**, particularly where it involves medical procedures and interventions, and what regulations apply to it.

Who is this for?

European Union (EU) institutions, particularly the European Commission, European Parliament, European Council, Council of the European Union, European Data Protection Board, Medical Device Coordination Group and the European Union Agency for Fundamental Rights. Also for the newly formed European Innovation Agency, the European Health and Digital Executive Agency and any other policy-makers at international, European, or national level working on issues related to human enhancement technologies.

Introduction

Human enhancement is a modification aimed at **improving human performance** beyond what is typical or average, brought about by science-based and/or technology-based interventions in or on the human body. Some forms of human enhancement (e.g., cosmetic surgery, doping in sports), have existed for a long time. **Recent developments in science promise substantial advancements.**

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Developments in genomics, pharmaceuticals, prosthetics, neurotechnology, biomedical engineering, human-machine interaction, artificial intelligence and nanomedicine have **unlimited potential to create future humans with superhuman physical and mental abilities.**

Some human enhancement is controversial socially and morally. They promise the advancement of humanity, but also introduce **serious risks to health and well-being, freedom, and equality.** Human enhancement research and development can be missed in ethical and legislative review. The field is broad, and enhancement potential can be difficult to predict, especially if such potential is not actively sought.

In all cases, guidance is needed.

SIENNA research has identified that there is insufficient guidance available for responsible decision-making on these topics, whether in research, development, deployment or use of technologies with enhancement potential. This brief presents some urgent actions and recommendations for policy makers.

Recommendations

Formalise guidance on human enhancement research, development, deployment and use, as well as for technologies with enhancement potential

- **Guidance is urgently needed**, and should have sufficient specificity and flexibility, so as to be useful both in the current context of enhancement

technologies and for new and emerging technologies. Without such guidance, a **systematic inclusion of ethical values and principles** in the design and development of human enhancement cannot be assured.

- Guidance should balance values such as autonomy, wellbeing and justice, and recognise that **technologies affect people differently**, whether as individuals or communities, enhanced or non-enhanced. Effects can be direct or indirect, and include issues of **access, equality, and discrimination.**
- The **ethics guidelines developed in SIENNA** for research in and development and application of human enhancement technologies and procedures can be used as a foundation for the framework proposed here. They could also be incorporated into existing ethics guidelines and research ethics protocols for relevant fields.

A broad range of expertise should be centralised in an expert body so that appropriate guidance can be offered on current and future ethical issues arising from human enhancement

- There is currently no policy-oriented body at the European level that tracks developments in human enhancement technologies. **An expert body should be set up which can make policy recommendations for ethical and regulatory guidance** of human enhancement research, development and deployment.





- An expert body could foster oversight, including with ethics instruments, like the ethics guidelines we refer to above. The body could also **ensure that risks and benefits for human enhancement technologies are rigorously and transparently assessed**, with stakeholder input.

There should be a comprehensive review of how European research funding organisations and research ethics committees devise funding and approval policies for (potential) human enhancement research

- Research funding organisations and research ethics committees require sufficient understanding of human enhancement to devise funding and approval policies for (potential) human enhancement research. This includes **how to identify, examine, and ethically assess current, new and emerging human enhancement technologies**, or those with enhancement potential.
- Guidance in this review should also be sought from **diverse stakeholders to ensure the representation of many interests and concerns**. High levels of transparency will help to ensure the quality of any assessments, proposals, judgements and decisions.

The status of human enhancement in the field of medicine needs to be urgently addressed

- It needs to be established whether and in what ways human enhancement can, or should, be considered **part of medicine**.
- The uncertain status of human enhancement in the field of medicine impacts the scope for **ethical assessment and decision-making regarding trials**, and how these fit with safety and efficacy studies.
- Where human enhancement involves medical procedures and interventions, it is particularly important to provide guidance on how existing regulations apply and **what new regulations may be needed or required**.





Final thoughts and take-aways

While there is uncertainty regarding the enhancement potential of current and novel technologies, it is essential to have rigorous, ongoing ethical oversight. The topic of human enhancement can be polarising, yet SIENNA has shown there can be consensus from stakeholders on some core topics. These have informed the foundations for this policy brief and include:

- the value of early ethical thinking for human enhancement;
- that ethics guidance for human enhancement can be useful where they have sufficient specificity and flexibility;
- that we need research funding organisations and research ethics committees to be equipped to devise funding and approval policies for (potential) human enhancement research;
- that assessing risks and benefits includes balancing individual choice and autonomy with the recognition that others can be indirectly affected by enhancements;
- the need to take into account where enhancements are internal to the body; irreversible; have long term impacts; use technology with a limited lifespan or that requires updates; have current or future personal data or privacy implications.

Further reading

Erden, Yasemin J., & Philip Brey, “SIENNA D5.3: Methods for promoting ethics for human enhancement”, 2021 (V2), forthcoming.

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This policy brief was prepared by Yasemin J. Erden and Philip Brey on behalf of the SIENNA project. It is based on the recommendations that can be found in SIENNA deliverables D3.7 and D5.3, and on research undertaken in D3.1 and D3.4

