

## OLD CONTINGENCIES IN A NEW STORY: HUMAN ENHANCEMENT TECHNOLOGIES IN THE CASE OF COVID-19

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### Abstract

This paper explores the ethical and social dimensions of Human Enhancement Technologies (HET) during disasters, particularly how their justification generates contingencies and influences social agendas. Building on Mitrović's previous framework of comprehending the double effect of the coronavirus crisis, the paper examines how bioethical debates shape medical and political practices, with implications for various groups. The analysis draws on discussing vaccination against SARS-CoV-2 as an internal form of HET, raising questions about the ethical boundaries and societal impacts of such technologies. The paper argues that technologies that typically require a thorough medical and ethical evaluation are applied hastily during disasters, potentially neglecting individual autonomy and public health interests, thus becoming part of a broader political agenda. It delves into the ethical dilemmas surrounding vaccination and how bioethical divisions in HET influence public discourse. The paper highlights inconsistencies in ethical debates and their influence on public perception by examining critical arguments related to HET justification. The final section proposes a framework for analyzing HET in future pandemics, using practical examples to illustrate the need for a more nuanced and ethically consistent approach.

*Keywords:* Vaccination, Disaster, Crisis, Human Enhancement Technology, SARS-CoV-2

### Introduction


In this paper, we aim to explore how the justifying of Human enhancement technologies (HET) during disasters generates contingencies (Mitrović, 2020) and

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how ethical debate may become a “social and political program” (Mitrović, 2014). Bioethical judgments specifically impact actual medical and political practices, which, in turn, impact the living conditions of various, especially marginalized groups, such as those in recent conflict zones (Mitrović, 2024).

In their article “Vaccination against SARS-CoV-2: A Human Enhancement Story,” Döbler and Carbon (2021) opened significant discussions on the ethical and moral implications of Human Enhancement Technologies (HET), mainly focusing on the role of vaccination in the broader landscape of enhancement technologies. Their argument presents vaccines as an internal form of HET, offering potential societal benefits but raising important questions about such technologies’ definition and ethical boundaries.

We deepen our previous argumentation that in disasters, some technologies that in normal times require a more detailed medical, social, and ethical analysis are applied despite the insufficiently researched effects they can produce in the long term, neglecting the autonomy and well-being of the individual and the interests of public health, which could turn into a political and social agenda (Mitrović, 2020). We use examples of the analysis presented by Döbler and Carbon (2021) while exploring the contingencies where “Human Enhancement stories” often encounter obstacles. In the first section, the paper analyzes the bioethical division of human enhancement technologies using various criteria. The second section is devoted to the ethical issues that surround vaccination during the relevant pandemic from the perspective of HET. The third section analyzed critical arguments that can be used to change public perception about the justification of critical HET, whether the ethical debates are consistent or not. The final segment proposes a framework for approaching HET analysis, which could serve as a valuable resource in upcoming pandemics, illustrated with a range of examples.

### **Distinction Between Internal and External HET**

One of the issues the HET story addresses is the distinction between the internal and external applications of HET. Döbler and Carbon (2021) argue that vaccines qualify as internal HET, as they are introduced inside the human body to enhance its immune system. This distinction, while crucial, is not entirely exhaustive. The authors focus on the location of the application (internal vs. external); still, they do not consider how efficiently these technologies operate in relation to the durability of their results, especially with virus mutations in mind. In addition to the division of enhancements into natural (e.g., immunization through contact infection) and artificial (e.g., vaccination), there is also a division based on the technologies used (e.g., mRNA, vectors, and subunit vaccine). It is usually a question of convergence technologies that include bioscience, informatics, and cognitive sciences, and finally, nanotechnology and nanoscience (Spohrer, 2002). Human enhancement technologies (HET) can be divided into a third segment that focuses on application frameworks, which encompass both external and internal

aspects, specifically addressing the concepts of permanence and temporality. This classification, akin to the initial distinction between natural and artificial, clarifies the ethical considerations involved and the legitimacy of enhancement concerning the specific technology employed and its underlying framework. Spohrer (2002) identifies a structure comprising four fundamental enhancement technologies that operate internally and externally, along with various subcategories, including one that pertains to external environmental influences. Included within these classifications are novel materials, such as nanocarbon tubes, diverse event settings (e.g., lockdowns or virtual reality), and new themes, exemplified by the virtual persona of futurist Ray Kurzweil, referred to as Ramona. (2) The notion of “out of body” is associated with individual experiences and introduces a subcategory of new mediators, encompassing tools and aids (e.g., online schools). (3) Inside the body - temporary technology, which means new techniques of oral-digestive use of enhancements (existing pharmaceutical agents for behavior control, then cognitive enhancers, vaccines, electronic lens, etc.). (4) Inside the body - permanent, which includes new organs (new senses and nerve endings), then new skills (new use of existing senses and nerve endings), and, finally, the most ethically questionable category of new genes, the possibility of removing existing ones, as in the case of genetic modifications for the purposes of acceptance of xenotransplants and the addition of new (synthetic) genes (Spohrer, 2002: 104-112). This segment offers a brief explanation of the types and subtypes that comprise the framework for enhancement. To facilitate comprehension, the description will incorporate examples from the second division, where the applicability of the vaccine as an HET becomes evident.

The distinction between natural versus artificial and reversible versus irreversible HET, as well as permanent versus temporary effects, should be central in assessing the long-term impacts of technologies like vaccination. In the context of COVID-19 vaccines, for instance, the current vaccines provide artificial, temporary immunity, raising questions about their classification as a “human enhancement.” Unlike potential genetic modifications that could provide permanent immunity, vaccines represent a temporary, reversible form of enhancement. Nevertheless, this subgroup is different from natural immunization. Second, in the case of COVID-19, HET temporarily is pictured with the virus infection with the Omicron variant in persons already vaccinated with a vaccine based on the Delta variant (Chaguza et al., 2022). The third, vaccine as a kind of temporary, reversible profile of enhancement may, especially in non-selective usage, cause adverse health effects for some demographics, e.g., the pediatric population (Pandit et al., 2022; Yousaf et al., 2022), making the risk-benefit profile of COVID-19 vaccination in children remain uncertain (Copland et al., 2024). This raises a substantial ethical concern, considering that (Bernard et al., 2021; Shin et al., 2023) report had highlighted that before the emergence of Omicron, COVID-19 posed minimal risk to children and adolescents, both in comparison to other illnesses and in absolute terms.

## Ethical Concerns Surrounding Vaccination

Döbler and Carbon (2021: 7) also touch on the ethical concerns related to vaccination, arguing that ethical issues often arise from individual attitudes, insufficient scientific communication, and issues of distributive justice rather than from any inherent malice in the technology itself. While this is an important point, it leaves out other critical ethical considerations, such as the role of autonomy and informed consent, especially when dealing with a technology applied on a mass scale during a global health crisis, such as a short vaccine trial<sup>2</sup> (5-10 times shorter time during COVID-19) of the clinical research and, especially, the lack of it for all demography (Meo et al., 2021; Wagner et al., 2021). Furthermore, the selective use of vaccines for various age groups led to the recommendation, and shortly after retrieving that direction, for the young population with the vaccine against COVID-19 (SST, 2021).

Autonomy, for instance, becomes a central ethical issue in cases where governments or public health organizations mandate vaccination. How do we balance the collective good with the individual's right to choose? Döbler and Carbon (2021) rightly point out that understanding the broader ethical debates on HET can provide valuable insights into policymaking in such scenarios. However, they could have extended this discussion by examining the tensions between paternalism and individual freedom more deeply, emphasizing only the intrapersonal level of action and ignoring the interpersonal (and communicable) level of analysis.

Ethics is mostly but not exclusively based on issues like (Respect of) Autonomy, Paternalism, Informed consent, Wellbeing, and No Harm. Döbler and Carbon's (2021) concerns like distributive justice, insufficient scientific communication, and individual attitudes are not ethical issues but social or even sociological issues. Ethics based only on the last-mentioned categories will be oriented to our social and personal expectations and circumstances, which are one more step closer to a contingency that opens the door to the solutions in which bad situations can justify bad ethics.

Solidarity is also an issue that the authors' (ibid) mentioned account did not take into consideration among previous social concerns. Solidarity means balancing the competition we constantly face in different spheres of social life and the wellbeing of others. It 'prevents' us from being servants to our dear selves yet allows us to express and enjoy our (relational) autonomy (incl. wellbeing). In modern society, solidarity is proportional interdependence caused by labor divisions and professionalization, while in traditional ones, there is a more mechanical type of solidarity that is less complex. Such a sociological portrait of solidarity may become a relevant indicator of crisis (Barton, 2005). For example, the fast development of the vaccine was not supported by the equal or even proportional procurement of it

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<sup>2</sup> For time lines of every trial phase see *Vaccine Research & Development*; How can Covid-19 vaccine development be done quickly and safely? John Hopkins, University and Medicine, Coronavirus resource center at <https://coronavirus.jhu.edu/vaccines/timeline> accessed 09. October 2024.

among high and low-income nations. That supported our previous argument about technological hegemony (Mitrović, 2014; Zack, 2021; 2023), which refutes Agar's (2003) account that the principle of technological diffusion will equally distribute HET. We will return to this issue in the last section.

Considering that we should not defend the HET's usage as a tool to enhance or restore the pre-COVID state, Frank (1995) pointed out in his book about the wounded storyteller that the patient's self-reflection on his health before, during, and after the sickness could be divided into three phases: I was sick, then I have healed, and I am healthy again. However, the author provokes this statement with the question, can things be the same as before? Does the newly healed state of patients have the exact health status as before, or does the patient have an ideal picture of their previous state (Frank, 1995)? Second, should we restore (and how HET can improve) all injustice and shortages in the social and healthcare system that existed before COVID-19, such as all kinds of discrimination and long-lasting social and health crises as well as various medicine shortages during normal times (Fox and Unguru, 2020; Zack, 2021)?

### **Public Perception and the Acceptance of HET**

Another key issue Döbler and Carbon (2021) highlight is the public's attitude toward HET and how crises like the pandemic can shift perceptions. They cite examples (see this example in Mitrović, 2020) where ethically controversial enhancements, such as reproductive cloning, could be reconsidered in specific circumstances—like a pandemic that causes infertility (Mitrović 2014; 2020). Here, they introduce Mitrović's (2020) perspective, which suggests that enhancements may become acceptable when framed as necessary solutions to global crises (Döbler and Carbon, 2021: 7).

Mitrović's (2020) argument raises an essential point of contention: How far can society be pushed toward accepting forms of enhancement that they would otherwise reject? This question is particularly relevant in the context of genetic modifications, where the boundaries of HET may blur between necessary health interventions and ethically dubious modifications. However, Döbler and Carbon (2021) are cautious about this notion. Nevertheless, as highlighted in the previous two sections, they do not delve into the broader implications of how the line between enhancement and therapy can shift based on societal needs and crises. One such issue is the extremely fast development and (conditional) authorization of the vaccines against COVID-19 (EMA, n.d.; Donati, 2022), which otherwise must be developed in more detail and in multiple more extended periods before they would be marketing authorized.

In light of our earlier remarks regarding the hypothetical dangers posed by human existence on Earth, the prohibited method may be employed to extend the survival of humanity, which encompasses the practice of human reproductive cloning. Juxtaposing HET and the COVID-19 story made the last hypothesis relevant. The contrast between HET and the COVID-19 narrative highlighted the relevance of our earlier comment. The most compelling evidence lies in the EMA's

declaration concerning unusual procedures for developing and authorizing various medicines, including vaccines against COVID-19: “The European Medicines Agency (EMA) supports the development of medicines that address unmet medical needs. In the interest of public health, applicants may be granted a conditional marketing authorization for such *medicines* on less comprehensive clinical data than normally required, where the benefit of immediate availability of the medicine outweighs the risk inherent in the fact that additional data are still required... Medicines for human use are eligible if they are intended for treating, preventing, or diagnosing seriously debilitating or life-threatening diseases.” (EMA, n.d.).

### **A Case-by-Case Approach to HET**

In their conclusion, Döbler and Carbon (2021: 8) emphasize the need for a case-by-case evaluation of HET, considering the specific nature of each enhancement technology and its potential consequences. This approach is essential in distinguishing between various forms of HET, as each can have significantly different ethical, social, and medical impacts. Vaccination, for instance, may be seen as an enhancement in the context of preventing disease. However, other forms of HET, such as genetic modification, raise more complex ethical challenges that require a more nuanced approach.

Nevertheless, we have pointed out in previous sections that even HET, which is applied internally to the human body with temporary and reversible health effects, such as a vaccine may differ in type, effects and authorisation. First vaccines may vary by the type of technology used (e.g., mRNA, vector, and subunit). The application of certain technologies is linked to specific manufacturers, some of whom may hold authorization in different regions globally, thereby introducing geostrategic challenges that could arise from efforts to achieve self-sufficiency (Ventola, 2011; Sabogal, 2022; Tirop, 2017). The matter may also illustrate the political challenges and tensions before the pandemic, as demonstrated by the escalation of persistent crises in Ukraine and the Middle East.

For example, reflecting pre-existing crises and ethnic and religious divisionism in the Middle East, “Israel has secured a significant stock of coronavirus vaccines partly by pledging to quickly share data on its impact with Pfizer, an agreement with the drug company” (AFP, 2021).

This “data for doses” arrangement is not just “one of the most extensive studies of humans” in recent history (AFP, 2021) but a clear case of a geostrategic move toward secure self-sufficiency, national security advantage and fortifying strategic bonds with the USA (Mitrović, 2023: 19-22) in the relevant geopolitical surroundings. Despite “Israel’s success” in procuring vital HET during the disaster, about five million Palestinians who are next door in the West Bank and Gaza Strip were not inoculated with this HET (Zogby, 2021; Hendrix, Rubin and Bruillard, 2021).

The same strategy is seen with the vaccine *Sputnik-V*, which was developed in



Russia with a grant from the Russian Direct Investment Fund (RDIF) and became the first registered (vector)<sup>3</sup> vaccine against COVID-19 on 11 August 2020 by the Russian Ministry of Health. This vaccine has been distributed to a total of 59 nations (today registered in about 70 countries), including Serbia. The onset of the Russian invasion of Ukraine in early 2022 prompted the United States and various allied countries to sanction the RDIF (Webster, 2022; USDT, 2022), thereby significantly hindering the future market potential of *Sputnik-V* (Webster, 2022; Hoffman, 2022). Moreover, despite proven safety in all three phases of research and high efficiency vaccine is not authorized by WHO (Chavda et al., 2023).<sup>4</sup> Out of the 44 vaccines under WHO assessment, only 16 fulfilled all necessary requests and were (re) confirmed from 2021-2023. Vaccine *Sputnik-V* is still under assessment due to an additional documentation request (WHO, 2023). *Sputnik-V* also made splits among and between EU and European countries on COVID-19 vaccine (Holt, 2021). For example, Serbia and San Marino, as European countries, and Hungary, as an EU member country, have inoculated populations with the *Sputnik-V* without WHO and EMA approval, whereas Slovakian Prime Minister has resigned due to ordering 200.000 doses of *Sputnik-V* without consulting his coalition partners (Higgins, 2021; Holt, 2021; European Parliament, 2021; EMA, n.d.).

The Chinese COVID-19 Vaccine (inactivated virus)<sup>5</sup> developed by Sinopharm and approved in China by the end of 2020, was introduced mostly in Africa, certain parts of Asia and South America, and in just three countries in Europe (Serbia, Belarus and Hungary as the only EU country) (BRIDGE, 2022). Having in mind the lack of the vaccine due to partly sanctioned Russian vaccines, the Chinese vaccine was approved in the COVAX system of the Global Solidarity Vaccination program under the World Health Organization (WHO) and still has not reached past and present geostrategic and economic concurrent like the EU and the USA.

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<sup>3</sup> A viral vector vaccine functions by using a viral vector to convey genetic material (DNA) to the host cells of the recipient, enabling the transcription of mRNA that codes for a desired protein or antigen, which in turn elicits an immune response (Sasso et al, 2020).

<sup>4</sup> The *Sputnik-V* vaccine, also known as Gam-COVID-vac, was created by the Gamaleya Research Institute and is composed of Ad26 and Ad5 vectors that carry the S protein genes from SARS-CoV-2. The *Sputnik V* vaccine from Gamaleya, which encodes natural S, does not appear to use 2P spike mutations. A study involving 76 individuals aged 18 to 60 years in Phase I/II trials demonstrated a favorable safety and immune response profile Phase III trials showed acceptable tolerability and 91.6% efficacy, and the vaccine was approved in Russia. According to the initial findings from Phase I/II trials published on September 4, 2020, the vaccine received approval for distribution in Russia in April 2020 and subsequently in 69 additional nations. Despite this, the vaccine is not authorized by WHO (Chavda et al., 2023).

<sup>5</sup> The term inactivated vaccine refers to a type of vaccine made from virus particles, bacteria, or other pathogens that have been cultured and then killed, thereby abolishing their capacity to induce illness. Conversely, live vaccines incorporate pathogens that remain viable, although they are typically attenuated, meaning they have been weakened. Inactivated vaccines utilize pathogens that are cultivated in regulated environments and subsequently destroyed to diminish their ability to cause infection, thereby safeguarding individuals from vaccine-related illnesses (Petrosky and Aquilar, 2004).

In its initial phase, the pandemic has revealed a lack of global solidarity, interstate competition for scarce resources, and uneven public health policies (Bollykyn and Bown, 2020). It has been revealed that the global benefits arising from national endeavors in vaccine development result from investments made by high-income governments and other stakeholders to secure doses for their populations. The notion of “vaccine nationalism” has been rightfully criticized, yet the investments driven by self-interest have played a crucial role in the rapid development and authorization of effective vaccines (Afifah et al., 2021, 19-20, 30; Mitrović, 2020; Riaz, et al., 2021; Zhou, 2021). A detailed examination of the situation indicates a disparity between the swift, self-interested development of vaccines (in this case, comprehended as HET) and the procurement efforts of low-income countries in the early stages of the pandemic (*ibid*).

Finally, the case-by-case approach also risks fragmenting the larger ethical discourse, making it challenging to establish broad ethical frameworks applicable to HET. Döbler and Carbon’s (2021) argument would benefit from more discussion on balancing the need for individualized evaluations with the establishment of overarching ethical principles that can guide the use of HET in the future.

## **Conclusion**

Döbler and Carbon’s argument about vaccines as Human Enhancement Technologies (HET) raises important questions about the application of HET, particularly in the context of the global health crisis. While they offer valuable insights into the ethical debates surrounding vaccination, there is room for deeper exploration into the distinctions between temporary and permanent effects of HET applied in disasters, the role of public perception in shaping the acceptance of HET, solidarity, social justice and the ethical considerations of autonomy and consent. Although the recent pandemic has shown various more or less effective social and public health first responses, it was also a remarkable example of the quick development of the most efficient tool for preventing relevant infectious diseases (COVID-19 vaccines). Nevertheless, such a response reveals previous social and political crises that reduced the real efficiency of vaccines during a pandemic, teaching us that ethics and fundamental social values such as solidarity must develop hand in hand with HET.

By considering ethical contingencies and ensuring more nuanced social analysis, we can better comprehend the complex ethical landscape of HET, ensuring that these technologies are applied in ways that respect individual rights while addressing global health challenges. Combining a case-by-case approach with the holistic approach presented in this paper takes one step on the path toward ensuring that ethics do not slip into socioeconomic and political programs, often hidden behind justified public interests by default.



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## **СТАРЕ НЕДОСЛЕДНОСТИ У НОВОЈ ПРИЧИ: ТЕХНОЛОГИЈЕ ЗА ПОБОЉШАЊЕ ЉУДИ У СЛУЧАЈУ COVID-19**

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### **Сажетак**

Овај рад истражује етичке и друштвене димензије технологија за побољшање људи (ХЕТ) током катастрофа, посебно како њихово етичко оправдање генерише недоследности и непредвиђене ситуације и утиче на друштвене агенде. Надовезујући се на претходни Митровићев оквир схватања двоструког ефекта корона кризе, рад испитује како биоетичке дебате обликују медицинске и политичке праксе, са импликацијама на различите групе. Анализа се ослања на дискусију о вакцинацији, као интерном облику ХЕТ-а, против SARS-CoV-2 постављајући питања о етичким границама и друштвеним утицајима таквих технологија. У раду се тврди да се технологије које обично захтевају темељну медицинску и етичку процену примењују према убрзаној процедури током

катастрофа, потенцијално занемарујући индивидуалну аутономију и интересе јавног здравља, чиме постају део шире политичке агенде. Студија задира у етичке дилеме око вакцинације и како биоетичке поделе технологија побољшања утичу на јавни дискурс. Рад наглашава недоследности у етичким дебатама и њихов утицај на перцепцију јавности испитујући критичке аргументе у вези са оправдањем ХЕТ-а. Последњи део предлаже оквир за анализу ХЕТ-а у будућим пандемијама, користећи практичне примере како би илустровао потребу за нијансиранијим и етички доследним приступом.

*Кључне речи:* вакцинација, катастрофа, криза, технологија побољшања људи, SARS-CoV-2.

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