

Is space travel a necessity or an indulgence?

I can confidently say that, with any hope in the moral compass of today's society, when faced with such a situation as: a sinking boat, encompassed by rising water levels, increasingly panicked screams of passengers, and failing mechanical systems, that one's automatic response would be to deal with the issue at hand- rather than redirecting the most senior crew to the top deck to start plans for a new, futuristic hydrogen aircraft, capable of whisking those elite crew members onto pastures new, as the boat, which had been placed securely on the back burner, sinks into the blue abyss. Although that is a rather long-winded analogy, I hope you were able to understand that I am referring to the fact that, while we look up to a sky of space, we are essentially drowning in the world of today. (Westfahl, 1997)

Therefore, in this essay I will argue in favour of 'indulgence.' In order to answer this question meaningfully, I must define the terms 'necessity' and 'indulgence.' To deem something an indulgence would be to describe it as a luxury and perpetuate the idea of optionality. In simple terms, something morally questionable when resources are scarce, especially if they can be reallocated to paramount areas of interest. Necessity, on the other hand, implies that something is essential for biological survival, progress, or long-term security.

Aristotle argued that humans are not merely organisms that survive, but are instead rational beings who seek knowledge, and that exploration is an inherent part of human nature. (Lear, 1988) Although this may be true, this inherent desire does not equate in any way to necessity. In wider terms, this desire risks expanding the concept of necessity so far that it loses all meaning and hence becomes indistinguishable from ambition, which can be categorised as a form of discontent. It assumes that fulfilment exists in a future state, anchoring you in a continuous cycle of striving in which every attained milestone simply generates novel desires. This calls us to consider our moral priorities and hence, the urgent problems on Earth, meaning that expensive space travel only exacerbates the deep-rooted issues we face today, such as poverty.

While it can be said that space exploration has instrumental value, giving it the potential to be useful, this does not automatically equate to moral necessity. Philosophers maintain that discovery is valuable within itself (Pritchard et al., 2022); however, things such as art, music, and philosophy are of immense importance, yet are often deemed luxuries in crises. The same logic can be applied to space exploration. Having the capacity to do something - even something inspiring - does not impose any obligations upon us, and any claims of humanity's 'destiny' are projections, not facts.

This question touches upon the problem of potentiality versus actuality. Our potential describes what we could become- humans have the potential to become a multi-planetary species, and space exploration is the process of actualising that potential. However, it is important to understand that not all potential needs to be realised and acted upon, and that many human capacities are deliberately restrained, for example, power and domination. In this way, the conquest of space is seen as the pursuit of possibility for its own sake. Immanuel Kant promoted deontological ethics- the adherence to moral duties, such as to not harm others or the environment. This opposes the exploitation of space irrespective of the potential benefits, as it focuses on fulfilling moral obligations rather than pursuing desirable outcomes, so investing in space exploration may be considered unjustified when more immediate human needs remain unmet (Martinez-Frias et al., 2011).

Furthermore, Kant argued that the 'starry heavens' inspired awe. (Guyer, 1998) However, this is more usefully interpreted in this context to mean that awe does not prescribe conditions of any sort, and

that the universe does not possess an inherent purpose or direction. Kant argues that humans cannot know 'things in themselves' (Guyer, 1998) we only know appearances. This illustrates the limits of human knowledge and the impossibility of understanding the cosmos. The Sisyphean idea of chasing total knowledge through space exploration, therefore, seems indulgent.

Many space missions are driven by intellectual fascination and prestige, of which the latter we can see in abundance in modern-day space exploration- projects that stem from elitism. Any findings may only positively affect those making the endeavour, like private entrepreneurs through investments in research and development of new technologies that advance production and consumerism, thus promoting social inequality: "When humans left Earth's orbit, inequality came with" (Popovaite, 2019). Behind the rhetoric of collective progress lies a reality in which only a select group of billionaires are set to profit, like multi-billionaires Elon Musk and Jeff Bezos, which presents space as a 'playground for the wealthy' (Moskowitz, 2024).

Space exploration poses uncertain returns- and not all expeditions produce tangible benefits. It will likely remain an extremely expensive and risky endeavour for centuries to come. Outer space itself is overwhelmingly barren and hostile to human life. The space environment- with its low level of gravity, wide temperature variations, and high levels of ionising radiation from the Sun, from particles trapped in the Van Allen radiation belts, and from cosmic rays (Logsdon, 2026)- is an unnatural place for humans, which poses the question of our right to overcome this contrived barrier, and attempts to change it will require solving countless major technological challenges.

Space advocates like to talk about the unique conditions available only in outer space, for example, temperatures at a few degrees above absolute zero. However, we can imperfectly duplicate these conditions on Earth, obviously to a lesser standard, but the astronomical costs may not justify that improvement. In *The Case Against Space*, Gary Westfahl argues that, rather than relocating factories to Antarctica for cold-temperature manufacturing, companies would simply develop advanced cooling systems. Likewise, investing in improving Earth-based technology is more practical than spending vast resources on advancements in space technologies. (Westfahl, 1997)

It would be impossible to argue against the fact that advancements in space have played a role in shaping the scientific world of today, for example, GPS and weather forecasting, and they are undeniably of economic and strategic importance. The term space exploration commonly crops up in discussions surrounding global finance, communication, and military systems (European Space Agency, 2024). Stephen Hawking argued that becoming a multi-planetary species may be necessary to avoid extinction (Galeon, 2017). However, critics contend that colonising other planets is neither a practical nor a sufficient solution to existential threats. This impossibility of a 'second home on Mars' is often used as a justification, despite the limits of our technology, which are unlikely to develop into what is required without vast injections of money and expertise, on a much larger scale than currently. This poses the question of the viability and the true usefulness of developments in space, as they are unlikely to materialise for a long time, and by the time they bear fruit, we may well have developed terrestrial solutions to the problems they address. (Westfahl, 1997) For example, while the discovery of the black hole UHZ1 enhanced astronomer's understanding of how early black holes were formed, it did not produce immediate practical benefits for people on Earth (NASA, 2023).

It is true that money spent on NASA positively affects the US economy by providing highly skilled jobs and creating business opportunities through its research, development, and contracting activities. In

2023, NASA supported 304,803 jobs nationwide (NASA, 2024). In order to justify spending and secure funding, NASA scientists may sometimes map Mars in ways that present it to the public as an exciting and accessible world, thereby encouraging political and financial support. In effect, those who make these profit-orientated proposals are like ‘atheists quoting scripture in an effort to convince Christians to support them, and as such, they are almost by nature unpersuasive’ (Westfahl, 1997) by arguing that profit-based arguments are often ineffective because they rely on instrumental rather than intrinsic justifications. Moreover, to refute this idea that the supposed ‘benefits’ outweigh the expenditure, the federal budget request for NASA amounts to more than \$25 billion, which was reportedly ‘greater than the budget to support the country’s nutrition programmes and address homelessness combined’. Joel Berg, CEO of Hunger Free America, estimates that this colossal sum of money could in itself end food insecurity in America (blog.gale.com, 2024)

This argument also presents a sense of political complexity, hiding behind the cloaks of prestige and misplaced ambition. Space development itself can take two forms: cooperative (for example, the ISS), or competitive (the space race), of which the latter illustrates the degeneration of humanity when faced with the prospects of greed and status. From this point of view, outer space can be viewed as a ‘natural’ extension of capitalism and the next stage beyond globalisation. Since space is effectively limitless and beyond human understanding, it offers opportunities for indefinite expansion through access to vast, unclaimed resources. Unlike historical forms of expansion, there are no known indigenous populations, reducing the need for military domination to secure access. As capitalism depends on continual growth to sustain markets, this represents a new geographic frontier rich in untapped resources. (Popovaite, 2019) This is particularly concerning and is especially important when we consider that the choices we make will dictate the future of humanity’s presence on other worlds, with the potential to impact the environment on timescales longer than the human species has existed.

Many products of space exploration create an environmental paradox. For example, climate change monitoring satellite systems like those operated by NASA, their launches release dangerous chemicals and CO₂ emissions that contribute to environmental harm and damage to the ozone layer. Space travel releases pollution and, most notably, space debris that litters the Earth’s atmosphere. One passenger on a rocket creates 100 times more pollution than that same person on an airplane, and that damage will only increase with the increase in space tourism. (Marais, 2021) Planetary protection also raises significant ethical concerns, underscoring the need to preserve extraterrestrial environments free of contamination. (Kiest, 2022)

Prominent sociologist Amitai Etzioni, argued that space colonisation ‘brings with it an unbelievable subtext of despair,’ distracting from efforts to halt anthropogenic climate change, writing that ‘any serious Mars endeavour will inevitably cut into the drive to save Mother Earth.’ Moreover, the funding of space programs came at the expense of other sciences and sucked in the brightest minds. Money is thrown at space industries, while the underprivileged stay underprivileged. (Etzioni, 2018)

Concerns of morality surround the ethics of future persons, and the belief that present suffering should override speculative futures. Although space exploration could have a chance to influence the survival of humanity long term and the existence of future generations beyond Earth, this chance is not tangible, and to an even lesser extent, is said chance guaranteed. The moral weight of actual existence is greater than that of hypothetical future lives because they possess more direct moral standing by already existing, and by prioritising space exploration for future generations, it neglects present reality.

If you were to deny a homeless man any possible future chance for basic necessities so that generations centuries in the future can grow crops on Mars, you would be disregarding his value as a struggling human in the present day, with purely selfish intentions. The greed for knowledge should not be prioritised over the necessities humans lack. In 1969, civil rights leader Ralph Abernathy organised a protest at Cape Canaveral to oppose the 'inhumane priority' of space exploration over tackling poverty and racism (Maher, 2018), demonstrating the vast public unrest that space exploration evokes, and the magnitude of its unpopularity in light of its 'prioritisation.'

In conclusion, while the conquest of space may yield scientific and technological benefits, it remains an indulgence given the pressing social, economic, and environmental challenges facing humanity. The pursuit of extraterrestrial expansion may encourage the perception of space as an alternative frontier to exploit by relocating humanity's footprint, rather than confronting problems at their source.

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