

The Expansion Manifesto

When in the course of human events it becomes necessary for the people to burst forth from their home planet and fruitfully propagate into the cosmos, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the expansion.

We hold these truths to be self evident: that humanity must be eventually limited if Earth is to perpetually contain her; that knowledge is intrinsically good; that the only solution to maximise knowledge and the grand economy of human scale is to strive forward beyond our default, to seek all that we can imagine and all that we cannot, to find new priorities with knowledge we could not yet have, and not to yield to technological or terrestrial constraints; and that charging forth with gratitude for our home embodies the highest respect.

Thanks and prudence, indeed, will dictate that what is old will not be forgotten; that novelty will not be chased on impulse; that intention will power our separation from circumstance as we seize what we thoughtfully choose, stepping out from under the glorious shadow of Nature and picking up her torch.

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First, we must acknowledge the grave consequences of reduction. More is more, and less is less. We prefer more. We can do more with more, including cleaning up the messes of more's early striving. We can rebuild, repair, and reprove. But we cannot stop, and we must not revert. We are in an age of planning and prudence, thrust upon us by our ignorance. Such a venture as expanding beyond Earth would not have been possible before this age, not only for the limitations of technology. Humanity was not ready. Public emotion was not sensitive, public intellect was not sharp, and public morality was bumped for survival, for conquest, for instinct.

We are ready now, because we are sufficiently intimidated, introspective, and hardened. We have handled a revolution badly, and decided to either revolutionize better next time, or never again. We choose the former.

To properly parse the problem of expansion, we must look past the intuitive time frame. Earth is not on track to constrain the human population within our lifetime. And with technology not yet imagined, we push further the already distant resource constraints. So, we must zoom out on the timeline as a steward for the human species, and indeed all known species and those we have yet to meet. It is clear that at some point in humanity's adventure, it will be unable to grow on the fruit of Earth alone. There exists a number that our home planet could not accommodate. As the architect of the human project, we must decide whether we accept such a limitation, even if only theoretical at this point. We cannot in good conscience accept it, as the consequences are worse than infinite: they are unknown.

This is not to abandon our home, or to obviate her care and maintenance. This game is not zero-sum. We can both have and eat our cake by planning carefully and running full steam away from instinct and tradition. When a game's victory feels near, we must find a bigger game to play, ideally one whose points are earned more honourably and which produces more victors.

Let us not fall into a growing trap of extinguishing our fires by making less fuel, of soothing our conflict by being less bold, of reducing our drag by using less speed. These are each only one solution to their problem, and rather bad ones at that. We can do better.

Slowing down is for unforeseeable emergencies and artistic expression. All other endeavors need to find a solution in being more knowledgeable, more careful, or more efficient. This is the principle of sustainable expansion to which we choose to adhere.

Second, let us not lose sight of long-term when discussing the short, nor the short when discussing the long. If we can agree that knowledge is good, we can debate in which term it is best. Immediately, knowledge is a tool which allows us to progress. Knowledge begets knowledge and has the pleasant side effect of solving our discomforts and unfairnesses. And progress compounds on knowledge, so finding it quickly can pay grand interest. But knowledge in the long run merges with morality itself. It transcends a means and approximates an end. If we keep asking ourselves why we ought to act a certain way, we eventually find a knowledge-shaped hole that needs to be filled to proceed.

One of two decisions must be made, either to reduce or expand. We find reduction to be the more dangerous choice, for not only do we consider the foreseeable consequences, but also the consequences yet to be imagined.

Third, with an eye to our chaotic beginnings, we must act and create in such a way to embody all of the learning from our mistakes. Civilizations evolved from chaos, but didn't leave it all behind. Infrastructure evolved from what was necessary to mitigate disaster, to what would allow most comfort and productivity. We moved from retrospective repair to prospective planning. And all of this was in a relatively forgiving terrestrial context. When we made a mistake, we cut down another tree and rebuilt or we burned more fuel. We have yet to run out of do-overs. But we must act like our next planet will be barren and scarce of resources in the beginning, both because it probably will be, and because even if it is not, it's a useful metaphorical truth to uphold. We must get the very most from every Joule and every gram.

The infrastructure on our new planet will have one beginning, and one point of maximal efficiency for implementing careful plans. We must begin with a system that is both versatile enough to facilitate all our current and foreseeable goals, and compatible enough with innovation to meet those challenges yet to be discovered. We can no longer function on the mindset that something can have one purpose. On Earth, a chair can be a chair; but in our

second home, a chair must be a chair only when there is sitting to be done, and not waste atoms when sitting isn't useful.

With this concept in mind, a thought experiment can help us explore how these ideas might manifest several steps in the future, upon landing on a new planet, exploring, and building the founding civilization. Ideally, a completely automated system of modular building blocks would be whatever you need them to be. With just a small amount of matter, perhaps from carbon capture polymers, mining, import, or other creative sources, the minimal amount of material will assemble itself into a vehicle to transport what needs to be moved until the moving is done, a shelter to house who it needs to house until the housing is obsolete, a crane to lift mined materials to the surface until the mining is exhausted, and then a tower to enhance communications, or whatever is needed next. This would all be powered by sustainable energy.

When there isn't much to use, we need to maximise the utility of every item. This need not use more energy, but it does require careful planning. Innovation is the key to perpetual energy, not by breaking the laws of physics, but by finding ways to do ever more with the same, and remove "less" from our vocabulary altogether. If we can make up for something we lack by just being more careful, that is an opportunity we must leap to accept.

The first step toward this important milestone is to ensure that we manage our matter with intention. Every atom must be assembled to avoid limiting how we can use it without adding more valuable energy to change its orientation. Instead of melting something used for purpose A and recasting it to serve purpose B, let's make sure it was created originally with the capability to serve purpose A, B, and more. Again we lean on the notion that this game is not zero-sum. Insofar as more purposes can be added without detracting from others, we are innovating at 100% efficiency, and insofar as we can innovate to gain more benefit than we lose for every change we make, we must capitalize on that opportunity. We soon will sit at the negotiating table across from Thermodynamics as we try to buy more utility and progress, more comfort and satisfaction, more morality and knowledge. The amount of cash in our wallet is directly proportional to how thoughtful and careful we were as we approached. We cannot account for that which we cannot control, but to the extent that we choose not to exercise control over that which we can, we have committed the sin of inefficiency, and our punishment will be suboptimal progress. Dare we not even toy with the idea of suboptimal progress, for we choose to do these things not because they are easy.

Fourth, we must balance progress and principle. Someone needs to steer this expansion toward the cost-free efficiency only found in innovation and planning. But innovation is never complete, and so we must not wait for its completion to begin our expansion. Instead, let us ensure that when the expansion begins, our planning for it has been as optimized as resources we could acquire could have reasonably allowed. Let us not neglect the need to communicate our quest and inspire others to join, and let us not allow perfection to stand in the way of progress. Let us take liberty and solace in the notion that when the goal is optimization, even a partial victory is worthwhile. Partial optimization is infinitely better than none.

In this balance will come the constant struggle between control and collaboration, between short-term growth and long-term position, between communication and innovation. When the choice becomes unclear, let us stand atop the principles laid out herein, and any we have come to know as our journey progresses, charging ourselves with the burden that indecision is a decision, and unforeseeability is as much a lack of imagination as a matter of circumstance, and simply do the best we can in an uncharted sea under a starless sky with not much more than sincerity, honesty, and careful intentions in hand.