

Sustainable Abundance, Security and Freedom

The point of this essay is to open a door to an infinite world of diversity, peace, prosperity, freedom, and abundance that becomes available when we stop valuing all things in markets, and start assessing what is truly most valuable to each of us as individuals, and work cooperatively toward those things.

This essay topic posed the question, “What is the best state that humanity can realistically achieve?” which to the author, encapsulates part of the problem humanity faces, and is in one sense very much like the question, “Have you stopped beating your grandmother yet?”

The idea that there is a “best” anything makes many assumptions.

We must begin thinking in binaries, as that is the simplest way one can divide any Infinity, into one of two classes (best/worst, good/evil, right/wrong, hot/cold, heavy/light, wet/dry, etc.).

At the next level of thought we think about things linearly, and we have lines, with polarities as their terminating points, and we can label one pole as best, and the other as worst. These can be useful approximations in some situations.

But when it comes to thinking about entities like individual human beings, with each individual a general purpose computational entity capable of choosing any of an infinite class of values, then we arrive at a potentially infinitely diverse set of answers to the question of what is “best” in anything.

Therefore, when one considers the set of human beings, or, more generally, the set of all self-aware entities capable of choosing their own sets of values (sentient beings), the nature of the question alters in scope to what most would normally consider.

Viewed from this perspective, the best outcome is one that provides each individual the greatest possible security and the greatest possible freedom; acknowledging the inherent conflict between those two concepts. In considering the conflict, it may be useful to consider a family saloon car verses a race car:

The family saloon will be fitted with many devices to provide safety, self-centering steering, antilock brakes, limited power motor etc – to deliver an outcome that optimizes stability and safety while providing acceptable speed.

The race car will have steering which is on the edge of instability, which offers the driver the greatest possible freedom of action, but requires the highest level of skill to maintain stability and safety in the process, similarly with all aspects of the machine and its use.

It seems that possibility space offers us a potentially infinite range of skill sets, and individuals will want to assume risk profiles commensurate with their skill levels in any specific domain. Forcing a skilled gymnast to use a Zimmer frame to reduce the risk of accidental fall is not an acceptable outcome. Hence the use of laws and punishment is to be avoided in all but the most pathological of cases.

It is clear that any future worthy of the title “best” or “optimal” must be capable of supporting infinitely varied skill sets, capable of assuming infinitely variable risk profiles in the actions they choose.

We cannot constrain the outcomes, so what does security look like in such an environment?

It is clear to the author that security means doing our best to guarantee that survival needs are met for every individual, and that each person is empowered with the tools to self-actualize in whatever manner they responsibly choose. Responsibility in this sense means acknowledging the right to life and freedom of every other individual, and acting accordingly. This seems to encapsulate the notion of “best state,” and it is a completely open-ended evolving system.

In order to achieve this end we need to develop automated systems to deliver the necessities of life to every individual. We also need to develop secure places where we can experiment with many of the more dangerous possibilities that are now available to us — particularly in the realms of nanotechnology and genetic engineering. Creating large orbital habitats where such experiments can be done in places where complete isolation is actually possible is a requirement for “security” for the rest of us.

In considering how we realistically get there, and who implements the plan, we must consider some of the issues inherent in the current culturally dominant paradigms in use.

The two major ideas the author explores are money and evolution. Both are undoubtedly important, yet both are poorly understood by the majority, and are abused at many levels by those seeking power and control.

Consider the notion of evolution by natural selection famously championed by Darwin. It is a simple idea in one sense, in that it states that any system that can replicate, and has occasional errors in the replication process, will result in a diverse population of variants within which will exist competition between individuals for the resources of reproduction.

This competition (within the specifics of the environment) acts as a selection filter on random possibilities, and results in ever more effective survivors in the specific environments they find themselves in. Thus most people have the notion that evolution is about competition, which is true to a point, but not entirely true.

Evolution is more about using competition as a filter to select ever more effective sets of survival strategies, and some of the most effective possible strategies are cooperative. Counter to what most people are taught, cooperation is a natural evolution from competitive environments.

Games theory demonstrates that evolution is able to promote cooperative strategies if, and only if, those strategies are combined with strategies that prevent cheats from taking over. The simplest class of these attendant anti-cheating strategies are known as retaliators and “tit for tat” seems to be one of the most effective simple stabilizing strategies. Looking at living systems, we see multiple examples of cooperation in evolution. DNA and RNA cooperate to make proteins. DNA, RNA, and proteins cooperate to make cells. Different prokaryotic cells cooperated to give eukaryotic cells. Multiple cells cooperate to make bodies, with brains. And many different organisms cooperate at multiple levels to enhance survival probabilities in our complex world. In human beings, cooperation is seen in the highest levels.

Cooperation is not only a natural outcome of evolution, it is the highest expression of evolution in action. Human beings are not simply (nor even) exploitative competitive entities; we are extremely complex, highly cooperative social entities. We have evolved multiple mechanisms that make most of us feel better when we are cooperating than when we are competing, and most games acknowledge this as they contain both cooperative and competitive aspects.

Human beings are highly evolved social apes, with strongly cooperative tendencies at many levels. That fact is the single greatest source of optimism for our collective future.

So how is it that we are not all living in abundance and self-actualizing our own potentials? This is where understanding money and markets enters the story.

Money is a market measure of value. When we go to a market, we each have our own measures of how much we want something at a particular time; and that judgement is weighed against how scarce the object of our desire is in the market. If we want something a lot, and it is scarce, then we accept we will have to pay a lot for it. If we want something a lot, and it is abundant — like oxygen in the air — we may not be prepared to pay anything for it. So it is logical to conceive of market value as the product of human desire and scarcity (demand and supply at the individual level).

In our modern world there are many mechanisms to modify both our desires and our perceptions of scarcity. These mechanisms include things like advertising and politics, and also involve more complex things like culture and evolving cultural memes. There are some extremely complex and multi-level strategies in existence, involving legal and cultural components.

Markets are a great tool for allocating scarce resources, but the incentives of the market produce some profoundly anti-human outcomes.

As established with the oxygen example, true abundance (zero scarcity) has no market value, there can be no internally consistent market incentive to produce real abundance of anything. This profoundly conflicts with the human need for an abundance of a few vital goods and services required for survival and self-actualization. Markets will never produce real abundance for everyone, because there is no gain — no money to be made from it. There is only a small group at the top end of the distribution curve who will experience genuine abundance of anything in a market situation.

And it gets worse. There are strong incentives in complex market situations to drive all commodities to a level of scarcity that produces the maximum flow of money. This is fine for those who have accumulated a lot of money, but not at all utilitarian for those who (for whatever combination of events and strategies and choices) find themselves toward the bottom end of the distribution curve.

It gets even more complex as our ability to automate and mechanize systems increases, so that the market value of the labor that many unskilled people bring to the market is less than the value of the goods and services they require to survive. This has always been so, but what has changed is that we are now technically capable of producing an abundance of all the material needs of people, but we do not deliver those goods and services to everyone because there is no market incentive to do so.

The Buddhists are onto something when they say that human nature is basic goodness. We are all basically highly social cooperative entities, whatever competitive skills and habits we may have acquired on our particular life journeys.

What other factors are key to understanding what is likely to happen over the next few decades?

Computing and technology driven by computers has been doubling in capacity every couple of years for a long time.

There is an interesting aspect of signals in noisy environments. If you have a noisy environment where variations below five percent are very common, then a small exponential signal can be invisible in the noise for a long time, and can then go from four percent to one hundred percent in just five doublings. With the roughly two year doubling time common to most technology, that is a mere a decade from essential invisibility to total dominance.

Security and wellbeing are key issues for most of us. The degenerative effects associated with aging are a major issue for many people. The rate of expansion of human knowledge means that we cannot afford to be perpetually ignorant youths. We need to be able to extend lifespans, potentially indefinitely, and it appears likely that this will happen quite soon.

It seems to be a truism that it takes 10,000 hours to achieve mastery in any discipline. We have already identified over a million disciplines, and it is logical that there might exist an infinite class of possible disciplines. It is also true that for most who achieve true mastery, for every step they take on their chosen journey the destination gets two steps further away (meaning that the more we know, the more we know we don't know, and the further away any approximation to total knowledge or total competence seems).

Everything alive today — including ourselves — is part of an unbroken chain of life going back billions of years. Simple life forms like bacteria do not have age-related senescence; that only happens in complex animals. It is clear to the author that complexity can only evolve rapidly in organisms that have mechanisms that cause individuals to die, otherwise the genetic drag of particularly successful long-lived individuals would prevent rapid evolution of populations.

So aging is, in this sense, an evolved mechanism to promote rapid evolution of complex multicellular organisms. Having arrived at this point, it is no longer of utility to us. We are much better off by extending our lifespans so that we can begin to grapple with the amount of information that is now available.

Information leads on to awareness. Awareness is not simply dealing with information, but with the relationships between sets of information. Abstraction is the ability to see patterns of relationships. It seems that there are potentially infinite levels of abstraction and awareness available to us, and most of those appear to be potentially infinite within themselves. So it seems that one could spend eternity exploring any level of abstraction or awareness, or one can continue exploring new recursive levels of awareness, or any mix of strategies one chooses.

All things are related at multiple levels, and all choices, even the choice of inaction, have consequences at many different levels. So how do we achieve this world of universal abundance and security?

The logic of mathematics is clear. It requires a cooperative strategy – competition at this level is not a stable option. Competition within a higher cooperative context is quite stable, and we do require cooperation at that highest level.

Games theory is clear; raw cooperation is vulnerable to cheating — at all levels — so we need attendant strategies to catch cheating early and to effectively remove the incentive to cheat by removing any gains made from cheating. There is a vast array of possibilities, and in a sense any of them will do as they share some common attributes.

A common objection of most who think about enforcing cooperation is the inherent danger of having set rules and regulations. But it is not required that we use legal mechanisms to enforce cooperation.

It is possible to use social mechanisms. Rapid access to reliable information is the most powerful way to detect and remove cheating. This is a fundamental change from the

systems we have at present which flood us with low grade unreliable information and severely limit our access to high grade reliable information. If we develop highly distributed trust networks of trusted and shared information; then we can identify cheating early and reliably, at multiple levels. And it will be forever true that *the price of liberty is eternal vigilance*.

Managing the transition from our current society to one governed by extended and largely automated trust networks is going to take extensive thought by a multitude of people.

One possible strategy is to use our smart phones to create a decentralized system of trust networks enabled by individuals having automated systems that share information with trusted people in their networks on a real-time basis. Everyone makes mistakes, that is how we grow; and some people are persistent fraudsters because in today's world information selectivity is poor. We are drowning in a flood of low-grade information. Google helps, but much of the most valuable information is still hidden behind pay-per view firewalls, or low on Google's rankings.

Recently, the author tried to research several topics and found that he could only do so effectively if he was able to spend up to \$60,000 per week to allow him access to the full text of the documents he was interested in. He knows full well that most of them will not contain the information he wants, but without seeing the details, he doesn't know which ones are which. Not being that wealthy, he found himself severely constrained. The information is there, but our social systems (the need for money) prevents it going *where* it is needed, *when* it is needed, and human misery results.

As a society, we could choose to fund a set of groups to produce a set of automated systems that are capable of collecting, processing, and manufacturing the energy and materials required to produce another set of identical machines, and to also be able to deliver a basic range of goods and services. A rough order of magnitude estimation on the author's part is thirty billion dollars and ten years, and we could produce such a system (this is roughly the lifecycle cost of a single Nimitz class aircraft carrier — the USA currently has ten).

Once we produce the first one and test it out here on earth, if it takes two weeks to make a second one, and we send it to the moon for replication, within two years we can deliver one unit to every person on earth, and still have a great deal of useful engineering capacity in space. We could use more moon launched mass to create large spinning habitats in high earth orbit to provide us with safe and spacious places in which to experiment with the many technologies that offer both great potential for benefit and also great danger if they get out of control (like nanotechnology and biotechnology).

Until that happens, we maintain our existing economic systems much as they are (with some adjustments), while we focus more attention on exploration and testing of possible options for transition to abundance. We start people thinking about what is likely to come, well before it arrives, even while we know that most will not actually spend much

time thinking about it, because the reality of their current existence requires most of their attention for mere survival.

We could immediately implement world-wide systems that guarantee all individuals have basic essentials: food, water, sanitation, housing, and access to education. That is not to say everyone gets fillet steak, but is to say that everyone can get fresh fruits, vegetables, and grains. The author has been vegan now for four years. It *is* possible. He is far healthier as a result, and the transition was not easy.

The plan is to develop international teams — under the auspices of the United Nations — that put the flesh on the bones of the systems outlined in this paper; and to act as a focus in creating international cooperation in our drive to joint prosperity.

The plan involves people reading essays such as this, and having ever more conversations with people about ideas like this, until it becomes an acceptable possibility, and then a reality. This can happen at many different levels simultaneously.

When the author started talking about ideas like this forty years ago, most people thought he was delusional. He is still talking about many of the same ideas, and now they are becoming much more acceptable because computers and technology are catching up at many different levels.

When a computer was the size of a house and took enough power to run a village, it was hard for most people to imagine them being smaller than a blood cell. Now we have powerful machines that fit in the palm of our hand; we have libraries filled with information on a chip the size of our fingernail, and most people can actually start to imagine the possibilities.

Violence will always be a potential issue. The notion that *the price of liberty is eternal vigilance* is an old one, and one that is substantiated by anyone who has ever spent significant time observing the natural world, or the mathematics of games theory.

There are no guarantees against the possible use of force, and any systems we set up can themselves become a threat. Ultimately we can reduce the risk through cooperation, but only if we are prepared to take action ourselves if necessary.

- All tools are morally neutral.
- All powerful technologies carry risks.

The risk of not producing the type of technology indicated here is that those decision-makers necessarily become responsible for the misery and deaths of billions by the consequences of their choices, and their own security is severely degraded as a result. Some people, some cultures, have extensive memories. The concepts of justice and retribution are deeply engrained in both the hardware of our brains and the software of our cultures – for powerful evolutionary reasons.

It is clear to the author that all of the infinite possible paths that result in real security for any, involve delivering that security to all.

- We have the real potential to do that now.
- We face real risks.

Our economic system is full of unstable positive feedbacks, and of systemic incentives that are clearly defined as “cheating” and “unjust” by the majority of people.

Many of our technologies impact on the ability of the world to sustain us; global warming, global pollution, etc.

- We face the risk of highly contagious lethal pandemics.
- We face risks from comet and meteor strike.
- We face risks from a direct hit of a large solar flare.
- We face risks from large scale volcanism.
- We face risks from sea level rise.
- We face any number of risks from biotechnology and nanotechnology.

The risks are legion.

We can find technical solutions to mitigate these risks, but not in a system dominated by markets that value scarcity, as most of the solutions involve abundance and any abundance is anathema to market values.

The potential rewards of new technologies are huge, and so are the risks. If we can build large habitats in orbit, we can do development of high-risk technologies in environments that can be contained should a problem occur. We cannot do that here on the earth's surface.

If we put arrays of sensors a significant distance out, we give ourselves time to detect and deflect any problem coming at us from space.

Our exponentially expanding ability to automate processes offers us a door to abundance and security for all.

The same exponentially expanding ability to automate the processes of production is destroying the value of human labour that once brought a semblance of stability to market-based systems, and at the same time is antithetical to the use of markets as a valuation tool.

We have huge cause for cautious optimism, and we also have urgent need for massive change in systems that have served us well up until quite recently in human history.

We are rapidly approaching the ability to defeat death from the degenerative effects of aging, which brings into clear focus the myriad of other sources of danger; many of

which have their most efficient mitigation strategies clearly based in universal abundance.

It is clear to the author that we — as a society — must start spending a significant portion of our intellectual and systems capital on exploring the systems outlined in this essay, and that the United Nations is a powerful vehicle for doing that.

It is clear to the author that within two decades we could deliver a world of abundance, security, and freedom to every individual on the planet.

- No freedom is without responsibility. No choice is without risk.
- As human beings, we do not have perfect knowledge of anything.
- The best any of us can do is make the most powerful of the choices we see as available to us.

The point of this essay is to open a door to an infinite world of diversity, peace, prosperity, freedom, and abundance that becomes available when we stop valuing all things in markets, and start assessing what is truly most valuable to each of us as individuals, and work cooperatively toward those things.

Markets were undoubtedly useful in times of real scarcity (which was most of human history). Now, as we approach the ability to generate universal abundance of most things, markets (with their inbuilt valuation of scarcity) become the single greatest danger we face.

We can build a future of abundance for all. Doing so requires transcending the values of the market place and adopting cooperative strategies.

The choice is ours.