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The Best Way to Predict the Future is to Design It

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Abstract

This article discusses perspectives and principles of R. Buckminster Fuller´s philosophy and possible implications on the future role of industrial design. The article challenges professional designers and students of design to look at their philosophical basis for design practice. The point of departure is an existentialist question for the design profession. What one should design towards in general terms and what rationale can back up designing in general?

A literature review introduces Fullers concepts and perspectives followed and also more recent concepts, like Open Desiign. In the second part of the article, contemporary concepts in technology and design practice are discussed and related to Fullers perspectives and predictions.
Finally, we remind ourselves that the future of our planet (spaceship earth) depends on our actions and dispositions.

Keywords: Design Philosophy, Spaceship Earth, Ephemeralization, Real Wealth, Open Design

1 Introduction

Attempting to peek through a pile of habituated assumptions about design, life and humanity, this article explores the outer reaches of what design practice could revolve around. In these hectic times it is a moment of pause, an attempt at catching a glimpse of what we as designers are actually here to do.

1.1 Origins of Industrial Design in USA

"*The name industrial design was invented about 1926 by the professional advertising company forefathers of what is now known as Madison Avenue on behalf of large banking groups investing in the automobile industry*."(Fuller, 1963) The assertion here is that real innovation was too expensive for securing profitable investments into automotive industry. At the same time, the public had acquired a deep sense of appreciation for the inventiveness of the automobile industry, displayed annually at car shows. The solution to this dilemma was the invention of the industrial designer, and his tool of choice, the airbrush. The authentic

inventors in the car industry were dismissed and the public was exposed to a series of cars that were robbed of genuine inventiveness replaced by artificial face-lifts. Similarly Victor Papanek in his book, Design for the real world points out: “In America, Industrial Design, was a child of the depression. At first glance, the swollen belly of a child suffering from malnutrition gives it the appearance of being well fed; later you notice the emaciated arms and legs. The products of early American industrial design convey the same sleek obesity and have the same weaknesses. For the Depression market, the manufacturer needed a new sales gimmick, and the industrial designer reshaped his products for better appearance and lower manufacturing and sales cost.”(Papanek, 1972)
Emphasizing the superficial origin of industrial design: “Norman Bel Geddes, Raymond Loewy and other pioneering practitioners of design in America. It is significant that all of them came from the field of (theater) stage design and/or window display”. (Papanek, 1972)

1.2 Established abilities

Both Fuller and Papanek, (Fuller, 1963, Papanek, 1972) argue that World War 2 had positive effects on the profession. In a time of material scarcity and a forced focus on survival needs, the industrial designers working on commercial products were steered in a direction of honest and functional design. Designers who took on the needs of the army, also quickly adopted a functional emphasis and sense of responsibility, as the products were not intended to sell, but to be used to keep people alive. This point highlights designer’s important abilities in a certain mind set. If the right emphasis and goal is integral in design practice, useful products and services emerge.

Moreover, in today's world of increasingly specialized specialists, we find that the designer also has an important contribution to make in providing a holistic perspective and vocabulary. Papanek notes: “Frequently the designer may be the only one who speaks the various technical jargons.”(Papanek, 1972) In an era of ever more complex projects and inventions, the need for bridging gaps between specialized academic languages is becoming evident. In other words, designers are able to comprehensively understand projects and communicate across multiple specialized languages. (Buchanan, 1992) Designers are also capable in non-algorithmic working processes. They have methods for working on problems or potentials without the need for a defined outcome, or a well-defined process. There are numerous models depicting the design process, trying to make sense of, and structure the methodology of design, but convincing narratives are also proposing that general algorithms for design are impossible, as designers deal with what Rittel and Webber refer to as wicked problems (Rittel & Weber, 1972).

1.3 Approach

This article reviews a body of texts by R. Buckminster Fuller and gives a brief introduction to his concepts and perspectives. Further we discuss, concepts from the book Open Design (Van Abel et. Al., 2011) as well as Design for the Real World by Victor Papanek. In the second part of the article, contemporary concepts in technology and design practice are discussed and related to Fullers perspectives and predictions.

2 Perspectives

A designer’s professional pride in beneficial abilities has little value if these abilities are only seen in a monetary context. When students learn to utilize their talents mainly as capitals tool

to exploit humanity's curiosity towards newness, confidence and self-esteem is displaced by distrust in design and oneself as a representative of the industrial design profession.
Designers of today should dare to be autonomous in their thinking. Thoroughly assess the job at hand to see if it is really worth their attention. In achieving this self-reliance and trust in one's own judgment, perspectives found in Fullers literature may help guide designers in their own thought development.
Buckminster Fuller originally coined the term *Spaceship Earth*. In itself, a powerful statement and an essential building block for a designer's perspective on the world. In realizing that the Earth we currently inhabit is a chunk of matter flying through the emptiness of space at incredible speeds, we obtain a sobering affirmation regarding our priorities. We need to obtain a perspective incorporating the totality of our spaceship, not just look at one nation, one town or one political issue. We need to understand that we are on a spaceship miraculously capable of sustaining life regeneratively, in an otherwise cold and thus far discovered; lifeless Universe(Fuller 1970). The effect and usefulness of such a perspective is perhaps best described by the numerous accounts offered by astronauts on the phenomenon called the "overview effect".(White, 1988) This term describes a reported cognitive shift, experienced by astronauts orbiting Earth. Astronauts report that the first-hand experience of seeing our Earth as one planet in the incredible vastness of space, gave them a sense of protectiveness for Earth, her ecology and for other people.(Harrison 2007)

From the planetary perspective of our great Spaceship Earth soaring through space, creating wealth is a noble concern, but only if a sensible definition of wealth is in place. Fuller provides an interesting definition: "We assume the measure of *real wealth* to be the magnitude of technologically organized capabilities of humanity to cope with the life support of so many humans for so many forward days under reasonably predictable Life-favoring environmental conditions"(Fuller & Snyder 1976). This definition provides a refreshingly new and much needed emphasis on the collective human aspects of wealth. It outlines what one could call "trans-money" wealth, and provides some clue as to where we ought to aim humanity's overwhelmingly large accounting power. This definition also emphasizes a time dimension in our understanding of wealth. The common definition of wealth: "A large amount of money and possessions" does not include the fact that these possession and money have no value if life-support functioning is scarce, or that having these possessions and money have no value if there is no time to utilize their potential.

Fuller uses the term *synergy* for the behavior of whole systems unpredicted by the behavior of their parts evaluated separately. "Going from micro to macro, each more inclusive aspect of Universe is unpredicted by any of its respective subparts taken separately. Universe is a synergy of synergies. It is a corollary of synergy that the known behavior of wholes plus the known behavior of a few of their parts enables discovery of other parts and their behavioral characteristics. In order to really understand what is going on, we have to abandon starting with parts, and we must work instead from the whole to the particulars."(Fuller 1973)
This notion is a hard one to integrate efficiently into design practice, because it implies a comprehensive assessment of total systems. Although this holistic approach might seem like a daunting task, designers are one of few professionals that have capabilities in rapid micro-macro oscillating multidisciplinary consideration.

In this bundle of perspectives there is one that can potentially have huge impact on our thinking; the acknowledgement of the immediate feasibility of *total human success*. That is, the realization that our current human know-how, combined with humanity's current inventory of material, is sufficient to provide the entire human population with standards of

living higher than what has ever before been achieved by anyone. For a long time we have been operating under the Malthusian-Darwinian assumption of us-or-them, only the fittest survive. This assumption is now totally obsolete if our technological efforts are exclusively aimed at "*livingry*" instead of *"killingry"*.(Fuller 1970, Fuller, 1963)
At the heart of our option for total human success, is the principal of *ephemeralization*. This is the word Buckminster Fuller uses to describe humanity's proven ability to progressively do more with less. As our technological and scientific know-how accumulates, and our minds keep discovering new general principles, our ability to accomplish more and more functionality with less and less energy, material and time investment expands. Ephemeralization is one of the most important guidelines for design in general; do more with less. (Fuller 1970, Fuller 1981)

People wish to have success, but few have a solid definition of what it is. In our pursuit of success we often get caught up in measurable quantities to give affirmation regarding our success; money, position at our job or the amount of likes on our Facebook page etc. This attitude regarding success renders us useless at attaining an internal source for feelings of success, and makes us dependent on external input.

3 Comprehensive anticipatory design revolution

"Don't attempt to reform man. An adequately organized environment will permit humanity's original, innate capabilities to become successful... Politics and conventionalized education have sought erroneously to mould or reform humanity." (Fuller 1973B) *Comprehensive anticipatory design revolution* is the phrase R. Buckminster Fuller uses to express his true intent and the goal of his designs. To reform the environment, not people, to facilitate their innate capability for success (Fuller, 1963). For designers it can be seen as a label intended to awaken the same sense of urgency and life-support emphasis found in the war-era design practice, without the us-or-them someone-has-too-die-tenets of war, and without a central authority issuing the prescription for our effort.

3.1 No more social reform

Comprehensive anticipatory design revolution is the opposite of social reform. The idea of telling people what they ought to do is in Fullers mind useless as a way to introduce the necessary change in our world and way of living. It is more effective to design the environment in such a way that people spontaneously adapt to a more sensible way of living. "We must design our way to positive effectiveness, and not just be negative about politicians and what they are doing" (Fuller, 1963). The use of the word revolution can in this context be misleading, because our associations with this phenomenon often imply violent rioting and prosecution of the current power structure. It is essential to emphasize that comprehensive anticipatory design revolution is a silent and unobtrusive revolution. Uncompromised by the blame game, the point is to consciously co-create a sane and sustainable way of living, without the need to violently confront or attack the status quo.

An integral part of the comprehensive anticipatory design revolution is an individual sense of responsibility. Designers and creators should incorporate a deep appreciation, commitment, and responsibility for regenerative Universe itself. The aim should be exclusively to assist the regenerative capability of our great Spaceship Earth, through our design initiatives. This Sense of responsibility is what the Spaceship Earth perspective, should evoke. We are all integral components of a beautiful synergetic unfolding. Our current position in this universal unfolding is on our magnificent spherical Spaceship Earth. Let´s make it work for all of us.

3.2 Don't wait for permission to make the world work

Fuller states that individual initiative by designers, architects and engineers seem to be the only probable means of shifting the direction of humanity's activities (Fuller 1973). There is no time to sit around and wait for permission to make the world work. We cannot expect other people or institutions to initiate the thinking and doing for us. Moreover, our current specialization fixation leaves no other "professionals" more prepared to deal with the broad, multidisciplinary problems facing humanity (Fuller 1970). This cry for individual initiative seems frustrated by our normal means of prescribed operation, and the fact that a master's or bachelor's degree in design, architecture or engineering normally comes with a substantial dept.

The book Open Design Now, argues that designers are in theory well positioned to have a pivotal role in the negotiation of competing futures, perspectives and timescales for sustainability. In practice, this theoretically assessed pivotal role is unfortunately frustrating, because designers are at the same time as being comprehensive in their assessment, idealistic in their initiative and earnest in their research "engulfed by a tentacular creative industries framework that lauds creative autonomy without providing much more than precarity compensation, while short product cycles and the volatile attention economy of real-time communications networks limit the potentially disruptive force of the call for sustainability."(Van Abel et. Al., 2011)

The questions raised about the actual implementation of comprehensive, anticipatory, sustainable design practice, leaves us at the junction between utopia and reality. The argument is that designers have an important contribution in operating our great spaceship Earth, but we are seemingly not positioned in the control room. Furthermore, we are buried in debt from the moment we step out of academia. With no time to spare we must rush into moneymaking without a clear comprehension of where our efforts are needed, and seemingly without the option to choose areas worth our attention if they do not provide sufficient debt reducing income.

3.3 A shift

Central to Fullers philosophy and thinking is a shift in conception, focus and intent. The concept of comprehensive anticipatory design revolution epitomizes this shift. Fuller felt inadequate in the game of moneymaking, and acknowledged he was much more effective in working for other people, and purposes other than capital gain. This shift or epiphany is explained in different ways in his literature, but the central theme is a shift from taking to giving. The question should not be what can I take from the Earth, societies or institutions, but instead be; what can I give? What is my position and purpose in this Universal scheme? What can I do to make the world work? (Fuller 1973)

Fuller transitioned from being an American citizen preoccupied with "making a living" in the building industry, to becoming a local Universe problem solver preoccupied with propagating a comprehensive anticipatory design revolution through his research, designs and inventions. In relaying the feasibility of working for the Universe and still being nourished, housed and clean, Fuller provides his life as Guinea Pig B as "proof" of the feasibility of thriving as an individual on earth while still only working for the benefit of all. "Making a living" is an obsolete obsession, if you work exclusively for Universe, you will be sufficiently compensated (Fuller, 1963). Fuller claims to have been on the verge of suicide, penniless, with a wife and child and devastated by his inability to function properly in the game of

moneymaking. He decided that he would commence on his own initiative to unlearn all the adopted reflexing he had acquired, and finally do his own thinking. "Making a living" would never again be part of his agenda (Fuller 1973).

If convinced of the feasibility of total human success (section 2.4) and the notion of Universe as eternally regenerative, the shift from taking to giving seems a natural progression. Generating collective value becomes a more sensible approach to motivate initiative. Fuller convincingly assures us that this does not result in degraded standards of living, collectively or individually, but it does rely on faith in the eternally regenerative integrity of scenario Universe. This reported shift in Fullers initiative leaves designers with an interesting question: Who am I? A designer for accumulating capital profit, or a local Universe problem solver? To what cause should I employ my effort?

3.4 Fullers inventions

Fullers perspectives required him to produce inventions clearly demonstrating his philosophic and intellectual position. As he states multiple times in his literature, social reform is obsolete, and the job of the comprehensive anticipatory design scientist, which is the label he uses to describe his "profession" (Fuller 1970) is to transform environments to enable the option of total human success. He stresses the fact that his ideas and visions must be translated into physical artifacts. The most famous and utilized physical example of Fullers philosophy and attitude is the geodesic dome. This is a spherical structure drastically reducing the amount of material necessary to encapsulate a given space. Geodesic domes are Fuller's most accessible practical example of ephemeralization. There are an estimated 100.000 geodesic domes in use today, about 300.000 counting play structures. (Edmondson 2007).

Geodesic domes are structural and architectural contributions to society, but Fuller did not regard himself as an architect. His work spans across multiple disciplines, and his work includes the Dymaxion car (gas efficient, aerodynamic, sustainability focused car seating 11 people), the Dymaxion house (popularly called the Wichita house), the Dymaxion map and Synergetics. The latter being Fullers hypothesized coordinate system of Universe, rendering the Cartesian coordinates currently employed ancient and unnecessarily complicated. Here it is important to note that whether you employ the traditional Cartesian coordinates or the tetrahedral, 60-degree coordinates proposed in Synergetics [18], the extreme willingness to question our current models of comprehension and thinking displayed by Fuller is the essence.

4 Contemporary technology

Are there signs in contemporary technology and innovation that offer legitimacy to Fullers prognostications? Has the comprehensive anticipatory design revolution begun? A glance at contemporary technology is commenced through the lens of Fullers perspectives and prognosis.

4.1 Digital fabrication

"A new digital revolution is coming, this time in fabrication." (Gershenfeld 2012) This statement refers to the rapid introduction of tools that replace machinists with computers. The need for a highly trained professional machinist to guide the tool path of tools like a milling machine is disappearing.

In light of Fullers philosophy, especially and most directly the concept of ephemeralization, this new paradigm of digital fabrication seems promising. As previously discussed, the concept of ephemeralization is our proven human ability to progressively do more with less. One key aspect to the connection between ephemeralization and digital fabrication is the opportunity it provides to produce tangible objects on-demand. The idea of on-demand production of artefacts adheres to the concept of ephemeralization in the way it counters overproduction and invites local repair. Another radical, and perhaps more fundamental way in which digital fabrication enables humanity to do more with less, is the way it effectively enables global collaboration combined with local manufacturing. Because digital fabrication tools are controlled by a digital input, a design conceived in Norway, can be transported to New Zealand in a matter of seconds, with negligible use of energy, then modified and produced locally at arrival. Furthermore, digital fabrication also enables faster learning in correlation with the "by-trial-and-error-only learning capability of humanity."(Fuller & Snyder 1976) Digital fabrication tools have the advantage of being extremely flexible compared to previous fabrication paradigms, in turn allowing much faster iteration rates. The first wave of utilization of these tools has been in rapid prototyping, mainly because of the fast iteration rates they allow. Also included in this on-demand flexible production, is the possibility for extreme customization. These new tools will cater to one-person markets. "How will we live, learn, work, and play when anyone can make anything, anywhere?" (Gershenfeld 2012).

The parallel between the development of computers and digital fabrication is clear. Starting with huge, expensive and inflexible mainframe computers, only affordable to large corporations, governments and elite institutions, it progressed to relatively cheap, small and user-friendly laptops available to the public at large. The basis for Gershenfeld's use of the word revolution in terms of fabrication springs from this parallel, and he claims that fabrication is undergoing much of the same development, as computers did, by transitioning from analog to digital operation. For designers this emerging fabrication paradigm is something to be watched closely. New and previously unimaginable possibilities for distribution and production are emerging.

4.2 Open Source and Open Design

The word open source emerged in software engineering, open source software is software that can be freely used, changed, and shared (in modified or unmodified form) by anyone. Often, large numbers of decentralized contributors collectively develop and improve open source software. This has been named "commons-based peer production" (Benkler & Nissenbaum 2006). As mentioned above, the rapid advancement in digital fabrication is unleashing a potential to collaborate globally and produce locally. To enable this collaboration to function, we need new infrastructure, new attitudes, and perhaps a new collective narrative about humanity's role in the Universe. Open source or more generally openness could be an important component or contribution to this narrative and understanding. Though the idea of open source first surfaced in software development, it is now emerging in physical fabrication, in design and in other areas as well. In assessing the idea of open source in relation to Fullers philosophy, it appears to be a logical step in the right direction.

If we revisit the notion of Spaceship Earth, it is immediately sensible to distribute and share progress. When beneficial artefacts are created, useful code is written or essential data is collected the only rational preceding is to enable others to utilize, build upon or collaborate in order to collectively make our world work. Keeping progress unavailable through patenting or

secrecy makes little sense when considering our collective faith of sitting on a great chunk of matter soaring through the emptiness of space. Furthermore, the concept of ephemeralization adheres to the practice of open source development. It is much easier to do more with less, if when conceiving an idea or solution, one can build on existing software or modify existing artefacts, we do not have to start from scratch every time. Open source is a mode of action that profits from continually moving forward and accumulating collective and individual knowledge, this is in stark contrast to the industrial economy "which depends on a command-and-control business model and militant copyright protection" (Van Abel et. Al., 2011) to ensure profit. Fullers' definition of real wealth is also highly relevant to the concept of open source and open design. As mentioned, Fuller defines real wealth on the scale of humanity, with life-support over a given time as the intrinsic parameters. Open source design, products, software, research and governance can be seen as a practice in which we add to humanity's collective or common wealth.

Synergy might also flourish in an environment of open development. Seeing synergetic potential in a broad range of developed technology will get you nowhere if patents and secrecy heavily protect the technological components involved in the envisioned synergetic possibility. A culture of openness invites synergies. "Systemic challenges such as climate change, or resource depletion – these 'problems of moral bankruptcy' – cannot be solved using the same techniques that caused them in the first place. Open research, open governance and open design are preconditions for the continuous, collaborative, social mode of enquiry and action that are needed." (Van Abel et. Al., 2011)

Considering the end-user, having open and accessible software or artefact designs is obviously beneficial, you do not have to teach or convince them why they should use it. It is perhaps more surprising to see thriving businesses emerge in the open source space. Examples of such businesses are: Arduino (open source microcontrollers), OpenSpecimen (open source BioBanking informatics platform) and Linux (open source operating system), to mention a few. Highlighting the fact that businesses are functioning in the open source space and being compensated for their services is important, because it emphasizes the fact that open source is not merely a naïvely altruistic buzzword. It works in both ends of the equation. For the individuals and businesses, it is a feasible way to do profitable business. For our collective human faith, it is a way of sharing and distributing progress to accumulate collective wealth.
"Instead of trying to restrict access, flourishing software businesses have sprung up that freely share their source codes and are compensated for the services they provide. The spread of digital fabrication tools is now leading to a corresponding practice for open-source hardware." (Gershenfeld 2012)

4.3 Design in the open

In this vast open space, what is the role of the designer? To start the exploration into the designer's role in this area, a remark by John Thackaras is perhaps reassuring: "Crowds may be wise – but they still need designers." (Van Abel et. Al., 2011) To get all this openness to function beneficially a great deal of comprehensive assessment is needed, and "Like any innovation, open design by itself is neither good nor bad. Its social value depends entirely on how it's used." (Van Abel et. Al., 2011)
Fullers perspectives presented in section 2 may serve as a starting point for formulating the questions we should ask open design to address. Total human success, ephemeralization, real wealth, synergy, eternal regeneration and our great spaceship Earth are all important considerations regarding our open design initiatives.

4.4 Template culture and wicked products

One of the concepts presented in the book Open Design Now is, template culture (Van Abel et. Al., 2011). This phenomenon describes the emergence of templates for customer's own designs. Businesses like Squarespace provide ready-made templates allowing end-users to easily create their own websites within an already created template (Squarespace 2015). Programming languages used to structure and style a website are too complicated to learn for making a single website. Squarespace and others provide an environment in which to build your website without the need to learn programming. The end-user is given freedom in expression, a sense of ownership and accomplishment, but designs are still carried out within a pre-designed set of parameters. This emerging template culture might also become relevant to designers working on physical artefacts. This relevance is brought on by the advancements in digital fabrication and the growth of the open source space. The idea of meta-designing, or production of "wicked products" might be a plausible practice for future generations of professional designers. Instead of designing unalterable consumer products, our activity might transition to production of templates, or solution spaces for prosumers and end-users to generate their own unique solutions based on a designed set of parameters.
"Wicked products" are artefacts that are meant to be alterable and hackable. In contradistinction to today's emphasis on products that are closed and intended to be used in a highly defined context, "wicked products" have, as wicked problems (Buchanan, 1992), no hard solutions, and invites users to understand and expand them. "Don't judge an object for what it is, but imagine what it could become." John Thackara in (Van Abel et. Al., 2011)

4.5 The Blockchain

The blockchain is a new concept with a potential to disrupt our conception of value, and further disrupt our means of cooperation. The blockchain is at the heart of the digital crypto currency named BitCoin: "We have proposed a system for electronic transaction without relying on trust."(Nakamoto, 2008) The blockchain is in essence a commons-based or distributed ledger. This means that all users of the blockchain have a complete copy of the transaction history of the entire network of transactions. Much like every cell in the human body houses a complete copy of the DNA. This distributed ledger is global, permanent, immutable and transparent, and mathematical law, not trust, backs the validity of the record. The blockchain is a staggering example of comprehensive anticipatory design revolution. Individual initiative has envisioned, developed and launched this initiative, and the source code is available to everyone. In addition, the blockchain is not in direct conflict with current power structures. It elegantly maneuvers around the previous paradigm and offers a much improved, corruption free way of exchanging and keeping track of values or assets. The blockchain is also a prime example of ephemeralization. With BitCoin as the example, the notion of allowing safe transactions without banks is doing a whole lot more, with a lot less. The idea of replacing huge amounts of banking infrastructure, with a secure, decentralized, public record is almost unimaginable, but this is what BitCoin is proposing. "Sovereign-powers-backed legal tender" (Fuller 1970) is losing its position as the most sensible and efficient way of exchanging value. "Move beyond the superficial public discussions about Bitcoin, and you'll discover a software breakthrough that could be of enormous importance to the future of commoning on open network platforms."(Bollier, 2015) For organizing our autonomous, decentralized effort for total human success, we might have stumbled upon a decentralized, immutable, trustworthy, infrastructure. The blockchain technology itself is a synchronized, securely time stamped database that can store information about ownership, and does so in a completely decentralized way. What this means for the future is still unanswered, but designers certainly have new tools, ideas and possibilities at their disposal.

5 Final remarks

To summarize, we departed with the question of industrial designers are true advocates of innovation or profit driven stylists. According to Fuller and Papanek the profession was invented to deal with the latter. War-time design effort provided proof of constructive abilities in a certain mindset. When life-support was prioritized, the air-brush was replaced by comprehensive thinking. Revisiting the perspectives and concepts of B. Fuller evoked new processes of thought and outlined aspects of an expanded vocabulary. Designers are perhaps in need of innovations in language to deal with the problems facing humanity.

An aspiring student asked Fuller: "what can I do to make the world work?" His challenging but sobering response was: "You must ask yourself that question; that is what I had to do – that is what the individual is all about; it is not about following some prescription or formula that I can give out"(Fuller 1973).

Comparing contemporary technologies and innovation trends with the ideas of Fuller shows that his ideas were way ahead of his time and ridiculously ambitious. Perhaps with these new tools there is still time to save humanity from self-annihilation? We have to acknowledge that the future of our planet (spaceship earth) depends on our actions and dispositions. The best way to predict the future is to design it

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