



## Leadership By Design: How One Individual Can Change The World

*Leadership Principles of Buckminster Fuller*

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He didn't head up an army or corporation, wasn't elected to any public office, was not the leader of a foundation, and wasn't wealthy. In fact, he had none of the trappings most people usually associate with leadership – yet Buckminster Fuller's leadership surely changed the world during the 20<sup>th</sup> century, and his impact continues into this century as well.

How did he accomplish this? What were the tools of leadership that he employed? Fuller himself often used the phrase “comprehensive anticipatory design science” to describe the far-reaching scope of his work and research efforts. In this article, we introduce a framework of leadership which we call “comprehensive anticipatory design leadership”. Through a careful study of Fuller's writings, inventions, and methodologies what emerges is a powerful blueprint for problem-solving leadership in an age of rapid change – a leadership approach that has implications far beyond the field of technological innovation. In fact, we believe that Fuller's problem-solving leadership skills are not only useful for changing the world – but can also be used when addressing the equally challenging task of changing your own local organization or business.

## ***10 Principles for Comprehensive Anticipatory Design Leadership***

So what can Fuller’s approach to life, change, technology, and design teach us about leadership? What do we mean by “comprehensive anticipatory design leadership”? Before exploring the specific principles that we uncovered, it is important to appreciate the rigorous, tenacious, and inspired patterns of thought that led to some of Fuller’s most impressive breakthroughs. As Fuller himself described,

**“I always say to myself: What is the most important thing we can think about at this extraordinary moment?”**

This was no mere platitude – but in many ways summarizes Fuller’s entire leadership philosophy. Fuller was *always* considering not just important things – but perpetually attempting to discern the *most important* things and placing them in the context of *extraordinary* times. In fact, it is no exaggeration to say that there were few other passengers aboard Spaceship Earth during the 20<sup>th</sup> century so keenly aware, and deeply appreciative of the extraordinary changes that were unfolding – as if waiting along the path of history in an almost childlike state of expectant grace. Forces set in motion eons ago were blossoming all around him, giving birth to titanic changes and truly astounding inventions, some already in hand – others just around the corner - and Bucky Fuller was absolutely thrilled to be there, helping nudge things along in ways he alone could imagine. It was his values and vision of a perfectible society, along with his razor sharp awareness of social and technological trends, combined with a relentless dedication to focus – *really focus* - on the *most* important things - that served as the foundation for his wide-ranging contributions and impact.

### **1. Think Comprehensively**

“I always start with the Universe.”

Throughout his career, Fuller demonstrated an unwavering dedication to framing problems in their widest possible context. When first encountering his writings, it is difficult to appreciate Fuller’s wide angle view on the world and the Universe. Armed with a poet’s imagination, and a scientist’s exhaustive inventory of the entire Universe – he could literally zoom out from a given problem in countless distant directions until he spied the remote fundamental cause that needed to be changed. Not just changed – revolutionized. If these upstream interconnections and causative factors could be addressed in a carefully comprehensive and decisive fashion, then Fuller had confidence that downstream matters would inevitably right themselves with a minimum of stress.

In terms of leadership, this means taking the time, and having the courage, to frame challenges clearly by digging into their root causes or the formative forces

that brought them into being— and seeing the opportunities that are always present. Instead of trying to convince people to change their behavior, Fuller sought to change the environment that drove those behaviors. By providing a new or altered environment, Fuller’s leadership provided a new logic that led to new behaviors and outcomes. At the core of this approach was a respect for the individual and their decisions.

## **2. Anticipate The Future**

Buckminster Fuller was ahead of his times – so much so that many of his insights, proposals and inventions were literally decades ahead of their era. Whether it was his 1930’s Dymaxion car that would look at home at the latest car shows; or his “World Design Science Decade” proposal which has morphed into today’s UN Millennium Development Goals; or his geodesic geometry that was discovered as a core design principle at the molecular level (the aptly named *buckminster fullerene* carbon atom C60 or “BuckyBall” )— Fuller had a well honed ability to anticipate the future.

Fuller was exquisitely in touch with trends, especially technological, world resource, and human need trends – enabling him to not only forecast the future, but allowing him to anticipate both upcoming problems and their optimal solutions. Almost like a great waiter is able to service tables and anticipate guests needs without your even asking, Fuller was able to anticipate what the world would need at critical junctures, and then offer up both the philosophical framework and practical tools for solving those issues.

For leaders, trend-spotting not only involves a feel for timing, but it also requires the ability to tune into the relevant topics, tune out the noise, and to act at the right time. Picking up on so called “weak signals” long before anyone else is paying attention is a key habit which leaders must develop if they are to accurately anticipate and respond to future needs.

## **3. Respect Gestation Rates**

Not only did Fuller’s trend-spotting make him aware of what types of progress were likely to occur, but he was also very in tune with the timing of these changes. He often pointed out that everything has its own gestation rate. A baby takes 9 months, a new computer chip 18 months, an elephant 22 months, and an automobile three to five years. . *Critical Path*, one of his better known books, details literally hundreds of years of human technological “gestation”. In the second-half of the 20<sup>th</sup> century, these gestation rates began to pick up in speed and frequency as one set of technological breakthroughs would impact on another. Recently, inventor Ray Kurzweil – very much in the Fuller tradition – has carefully documented in his book *Singularity* that even the change in the rate of change itself is accelerating. Fuller referred to this phenomenon, back in the 1960s, as *accelerating acceleration*.

The implications of accelerated gestation rates on leadership are profound. Carefully identifying and then synchronizing with the gestations rates of various changes you are facing helps insure that your solution, invention, plan, or reorganization arrives at just the right moment. If you arrive too early either in the actual marketplace or the marketplace of ideas – your solution runs the risk of being still born; it will not gain traction. If you are late to market – then chances are that your solution will be forever playing catch-up to the established solution.

#### 4. Envision The Best Possible Future

Fuller also used another technique for coming to grips with the future. This approach did not involve predicting or forecasting where different technological or resource trends were heading, but envisioning what the world *should* be like. Over the course of his life, Fuller developed a comprehensive moral vision that told him what the world should look like given our technological capabilities - a world where everyone's basic human needs were met, the environment sustained or regenerated, and a world safe and secure from the threats of war and social injustice were three of the linchpins of his vision for how the world should be. Many people found this “big picture” moral vision to be just as attractive and inspiring as his technological artifacts.

The take away for leaders is that not only are vision statements powerful tools for bringing about change – but that often people respond more enthusiastically to big and inspiring challenges than safe incremental change.

#### 5. Be A “Trimtab”

*Something hit me very hard once, thinking about what one little man could do. Think of the Queen Mary - the whole ship goes by and then comes the rudder. And there's a tiny thing at the edge of the rudder called a trim tab. It's a miniature rudder. Just moving the little trim tab builds a low pressure that pulls the rudder around. Takes almost no effort at all. So I said that the little individual can be a trim tab. Society thinks it's going right by you, that it's left you altogether. But if you're doing dynamic things mentally, the fact is that you can just put your foot out like that and the whole big ship of state is going to go. So I said, call me Trim Tab.*

Fuller's effigy “Call Me Trimtab” is rather unique. As described above, a trimtab is a nautical device that acts as a small rudder used to turn the larger rudder of giant ships, offering tremendous leverage in terms of steering and changing the direction of the ship. Fuller, drawing upon his naval experience, saw the trimtab as a



powerful metaphor for effective individual leadership: small and strategically placed interventions can cause large-scale and profound change. What makes this metaphor interesting is that the ship Fuller was referring to could be the entire planet, or any local system you are desiring to steer or change direction. To understand the full dimensions of the metaphor you need a clear understanding of the current direction of the “ship”, the flow of the currents it is moving through, the knowledge of where it is heading, and a vision of where the ship ought to be heading—as well as understanding where and how to apply pressure on the rudder to bring about change. As we have seen, Fuller had a strong vision for all these trimtab attributes. What is also interesting about a trimtab is that it efficiently brings about change with minimum effort – in other words – doing more with less – another of Fullers’ key principles.

The guiding questions for everyday leadership that emerge from a trimtab approach are easy to list – but much more difficult to execute:

- a. **What ship are you steering?**  
Are you trying to change the entire world? Or maybe just your own department? What is the *system* you are seeking to steer or change direction?
- b. **What direction is your ship currently heading?**  
This often requires careful discernment and reflection. What is the “big picture” direction and destination?
- c. **What outside currents, winds, tides, or events are impacting your ship?** Sometimes these are obvious, and close at hand – but oftentimes they are remote either geographically, in time, or functionally, and it requires special instruments and measurements to gauge these outside factors.
- d. **Where *ought* your ship be going?**  
This is often the most critical question of leadership. What is the goal, the prize, which you need to keep in sight so that your regular adjustments to the tiller, in response to the changing currents of the environment, will keep you on target? What is the big picture goal, not next quarter’s profit margin, share price, or units delivered—but the overarching social good? How will your efforts help to increase overall global well-being?
- e. **Where can you most efficiently exert pressure for “moving the rudder”?** Answering this question accurately is only possible if you’ve taken the time to answer the previous questions! In the system you are seeking to steer, what is the rudder, what is the trimtab? In complex social systems, it is often instructive to ask, what is the rudder of the obvious rudder or the trimtab of the trimtab? These “trimtabs of the trimtab” need to be identified so that the least amount of effort is needed to change the system.

- f. **How can you most efficiently exert pressure for “moving the rudder”?** Once you understand where you are going, and where change needs to happen in order to move in that new direction – the final step is to envision and plan how to make the change happen. Fuller had great faith in the individual’s ability to build artifacts, tools, and creative responses that would “move the rudder”. Not only that, but he recognized that each person would make his or her own unique contributions, based on their skillsets, life-history and available resources. The point is not for everyone to go out and invent new types of geodesic domes – rather, each person should be equally inventive in their own way.
  
- g. **How do you continue to navigate successfully through changing tides?** One of the most remarkable things about Fuller’s life is that he was able to reinvent himself and his particular area of focus on several occasions – while keeping his core values constant. Then drawing on the knowledge and experience from one phase, he was able to realize even higher levels of creativity and inventive breakthroughs than in the previous phase. This process of continual learning, creation, modification, and synthesis culminated in his global lectures during the 1960s when he spoke on hundreds of college campuses – captivating the younger generation with literally a lifetime of insight, observation, and wisdom. In steering by key guiding principles, Fuller was able to navigate a complex century, making a unique and lasting contribution.

Not every leader is destined to be the same sort of “trimtab” that Fuller was – but every leader can gain valuable insights from his highly leveraged approach and sea-faring and navigation mindset.

## **6. Take Individual Initiative**

By honing and honoring individual perspective and initiative, Fuller was able to take the lead on a variety of issues. Fuller was not seeking to be a “leader” in any conventional political or economic sense – he saw what needed to be done to make the world a better place and which no one else was attending to, and, being true to himself –dared to go off in directions that the typical crowd-following individual did not ever dream of going. His approach was an anti-“Big Man” leader, or anti central supreme authority style of leadership. He felt that everyone should be and is a leader . . . of at least of their own life.

For leaders, Fuller’s approach demonstrates that you don’t need to have the job or be the expert or have money to make a difference. Every individual should feel empowered to make his or her own contribution – whether or not they’ve received some sort of official blessing or sanction. Interestingly, even the biggest of corporations now recognize the need for self-motivated individuals to work on

projects and ideas in the unexplored market areas. This is not just an altruistic act on their part – rather, these companies recognize that their future market success depends on creating and capturing entirely new markets, and that these markets are almost always driven into being by the dedication and motivation of a just a few individuals.

## 7. Ask The Obvious And “Naïve” Questions

Sometimes leadership involves nothing more than simply asking the obvious questions. “Why do we do things in this way?” “Gee.. I don’t know – that’s the way we’ve always done it.”

For Fuller, his basic questions typically took on a big picture view: “With our expanding technical resources – why can’t we commit to feeding and clothing everyone on the planet?” “Why can’t we design homes that are easy and inexpensive to build?” “What is wealth?” “Why shouldn’t wealth continue to increase as our knowledge of technology grows exponentially?” “Why don’t we simply look at how nature builds things, and then build our own structures accordingly?” Part of the power of these questions lies in the fact that they spring from individual observation and inspiration, and are not dependent on a committee, policy, procedure, official edict. or dogma that no company or group has thought to address because they hadn’t thought to ask the obvious questions.

For leaders, sometimes the best way to initiate change is to simply ask the appropriate and perhaps naïve-sounding questions. The answers can often bring about a surprising jolt of action!

## 8. Do More With Less

*“Real wealth is indestructible and without practical limit. It can be neither created nor lost – and it leaves one system only to join another – the Law of Conservation of Energy. Real wealth is not gold. Real wealth is knowing what to do with energy.”*

Many people continue to mistake money for wealth, but capital itself has become a vast manufactured commodity circling around the Earth in search of true productive wealth. And what is productive wealth? **Knowing how to do more with less.** Any technology or system of technology that can create more output with less input will rapidly gain influence in today’s hyperlinked global economy. Whether it is the Toyota hybrid car delivering more miles to the gallon, or a new computer delivering more computing power per dollar, or Google delivering broader and faster searches per click, or Dell sourcing component parts from all across the world in order to deliver the cheapest and most powerful computers, – wealth today flows to the organizations and individuals who can use creativity and initiative to get more done with less. Fuller was impatient with artificial

financial schemes. His view on wealth also made him pragmatically optimistic regarding humankind's ability to feed and cloth the passengers here on Spaceship Earth. Fuller's equation for physical success of humanity can be summarized fairly succinctly:

- A. True wealth = Resources + Human know-how applied to meet needs
- B. You can never learn less, you can only learn more, so therefore wealth is increasing as we increase our understanding of the world, ourselves and the Universe

Thus – while the supply of raw materials is a zero-sum game, and leads to a scarcity mentality –the wild card in wealth creation that breaks the zero-sum standoff is human ingenuity, allowing us to accomplish more and more with less and less. Fuller was convinced that every individual could make a contribution to this overall cycle of wealth creation. For leaders, this means recognizing and encouraging everyone in the organization to contribute on a consistent and inspired basis.

## **9. Seek To Reform The Environment, Not Man**

*The function of what I call design science is to solve problems by introducing into the environment new artifacts, the availability of which will induce their spontaneous employment by humans and thus, coincidentally, cause humans to abandon their previous problem-producing behaviors and devices. For example, when humans have a vital need to cross the roaring rapids of a river, as a design scientist I would design them a bridge, causing them, I am sure, to abandon spontaneously and forever the risking of their lives by trying to swim to the other shore. (See bottom of page 2.)*

Flowing out of his trimtab philosophy, Fuller came to the conclusion the most effective leverage can almost always be found not by trying to change habit ridden men and women – but by reforming the physical infrastructure in which they live and worked. Thus, many of his projects focused on large complex systems such as housing, automobiles, energy, etc. Fuller was convinced that if these large scale systems could be optimized with a view towards maximizing actual human gain rather than measured by financial statements, then there would be a broad impact on human society as whole.

For leaders interested in “making the world a better place” – the implication is that reforming the physical environment can often have a large impact on people's behavior.

## **10. Solve Problems Through Action**

*Man knows so much and does so little.*

Fuller was never one to merely theorize about how things ought to be, and his creative portfolio, spanning nearly six decades of continuous leadership and invention is testimony to a hands-on, involved, and action-centered life. Beginning early in the 20<sup>th</sup> century, his creative portfolio documents a truly stunning range of projects (from shelters to flying cars, bathrooms, floating cities and social policy), interests (from geometry, to cosmology, architecture, technology, and humanity's function in the Universe), writings (27 books, hundreds of articles and thousands of letters corresponding with people all over the world), as well as drawings, photographs, videotapes, and observations. His Chronofile documents his effort "to see what one ordinary person could accomplish." Fuller received 28 US Patents and circled the globe more than 50 times, lecturing to audiences all over the world. The scope of his curiosity, and range of technical and artistic pursuits were united by a common thread of providing humanity with tools and artifacts for the benefit of all. Another thing to note is that not only did Fuller choose interesting projects to pursue, but his metrics for success were often at odds with the prevailing wisdom and values. The value he put on money reflected his big picture views on much of society's other sacred cows. He saw money as a means to further his explorations in "making the world work for 100% of humanity" but it had little intrinsic value.

For leaders looking to solve problems, Fuller example of an action-filled life should serve as tremendous inspiration. Not only did Fuller's actions and projects bring him great satisfaction over the years – regardless of their immediate impact – but as his portfolio of efforts grew, they served as inspiration for even greater breakthroughs.

## **Conclusion**

*If humanity does not opt for integrity we are through completely. It is absolutely touch and go. Each one of us could make the difference.*

Here in the early 21<sup>st</sup> century, the Internet – by offering individuals almost unlimited access to information - has made Fuller's Comprehensive Anticipatory Design Leadership approach even more powerful than ever:

- *Think Comprehensively*
- *Anticipate The Future*
- *Respect Gestation Rates*
- *Envision The Best Possible Future*
- *Be A Trintab*
- *Take Individual Initiative*
- *Ask The Obvious And Naïve Questions*
- *Do More With Less*
- *Seek To Reform The Environment, Not Man*
- *Solve Problems Through Action*

In following these 10 principles, there is no telling what a single ordinary leader will be able to accomplish!

## **About the Authors**

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