

The Anticipatory Leader: Buckminster Fuller's Principles for Making the World Work



FROM THE DYMAXION WORLD OF BUCKMINSTER FULLER (WFS FILE PHOTO)

By Medard Gabel and Jim Walker

For leaders striving to “make the world work for 100% of humanity,” there is no better model of leadership than that of “comprehensive thinker” R. Buckminster Fuller.

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 twentieth 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. 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.

We call this framework "comprehensive anticipatory design leadership." This problem-solving leadership framework could be useful not only for changing the world, but also for changing your own local organization or business—an equally challenging task.

10 Principles for Comprehensive Anticipatory Design Leadership

Fuller's approach to life, change, technology, and design can teach us much about 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 expressed it, "I always say to myself: What is the most important thing we can think about at this extraordinary moment?"

This was no mere platitude. In many ways, it summarizes Fuller's entire leadership philosophy. Not only was Fuller always considering important things, but he also perpetually attempted to discern the *most important* things and place them in the context of *extraordinary* times.

1. Think Comprehensively

Throughout his career, Fuller demonstrated an unwavering dedication to framing problems in their widest possible context. When you first encounter Fuller's writings, it is difficult to appreciate his wide-angle view on the world and the universe. Armed with a poet's imagination and a scientist's exhaustive inventory of the entire uni-

verse, he could "zoom out" from a given problem in countless directions until he spied the remote fundamental cause that needed to be changed or even 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, then seeing the opportunities that are always present. Instead of

trying to convince people to change their behavior, Fuller sought to change the environment to which those behaviors were a logical response. For example, if your organization has high employee turnover or your city is experiencing an outflow of residents, you must seek the root causes of their departure and address those larger issues.

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 individuals and their decisions.

2. Anticipate the Future

Buckminster Fuller was ahead of his times—so much so that many of

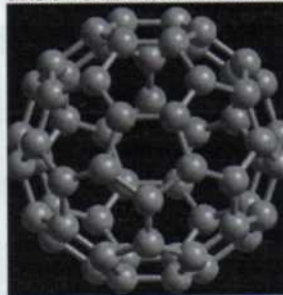
his insights, proposals, and inventions were literally decades ahead of their era. His 1930s Dymaxion car would fit right in at the latest car shows. His "World Design Science Decade" proposal has morphed into today's UN Millennium Development Goals. His

geodesic geometry was discovered as a core design principle at the molecular level—the aptly named *buckminsterfullerene* carbon-60 molecule, or "Buckyball." Clearly, 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. This enabled him not only to forecast the future, but also to anticipate both upcoming problems and their optimal solutions. Just as a great waiter is able to service tables and anticipate guests' needs without being asked, Fuller was able to anticipate what the world would need at critical junctures, then offer both the philosophical framework and the practical tools for solving those issues.

For leaders, trend spotting not only requires a feel for timing, but also the ability to tune in to the relevant topics, tune out the noise, and

UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN



Buckyball.

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"I always start with the Universe."

act at the right time. Picking up on so-called "weak signals" long before anyone else is paying attention is a key habit leaders must develop if they are to accurately anticipate and respond to future needs.

3. Respect Gestation Rates

Fuller's trend spotting made him aware of what types of progress were likely to occur, and also kept him very much in tune with the timing of these changes. He often pointed out that everything has its own gestation rate. A baby takes nine months; a new computer chip, 18 months; an elephant, 22 months; and an automobile, three to five years. *Critical Path*, one of Fuller's better-known books, details hundreds of years of human technological "gestation." In the second half of the twentieth century, these gestation rates began to pick up in speed and frequency as one set of technological breakthroughs would impact on another. Inventor Ray Kurzweil's recent book *The Singularity Is Near* carefully documents the acceleration of the rate of change itself. In the 1960s, Fuller had already named this phenomenon *accelerating acceleration*.

The implications of accelerated gestation rates on leadership are profound. Carefully identifying and then synchronizing with the gestation rates of various changes you are facing helps ensure that your solution, invention, plan, or reorganization arrives at just the right moment. If you arrive too early in the marketplace (or in the marketplace of ideas), your idea or solution runs the risk of being stillborn. If you are late to market, you'll only be playing catch-up with an already-established idea.

4. Envision the Best Possible Future

Rather than predicting or forecasting where different technological or resource trends were heading, Fuller focused on envisioning what the world *should* be like.

Over the course of his life, he developed a comprehensive moral vision that told him what the world should look like, given our techno-

logical capabilities: a world where everyone's basic human needs were met, the environment was sustained or regenerated, and people everywhere were safe and secure from the threats of war and social injustice. These 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 takeaway for leaders is that vision statements are powerful tools for bringing about change, and people often respond more enthusiastically to big and inspiring challenges than to safe, incremental change.

5. Be a "Trim Tab"—Mover of Big Ships

Fuller's analogy is rather unique. A trim tab 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 trim tab 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 wish to steer. To be a "trim tab," 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 going, and a vision of where the ship ought to be heading. In addition, you need to understand 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 trim-tab attributes. What is also interesting about a trim tab is that it efficiently brings about change with minimum effort—in other words, doing more

"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."

with less, another of Fuller's key principles.

The guidelines for everyday leadership that emerge from a trim-tab approach are easy to list, but much more difficult to execute:

- **Know what ship you are steering.** Are you trying to change the entire world, or just your own department? You must determine which system you are seeking to steer or change direction.

- **Know in what direction your ship is currently heading.** This often requires careful discernment and reflection on the "big picture" to see how your direction and destination fit in the larger scheme.

- **Know what outside currents, winds, tides, or events are affecting your ship.** Sometimes these forces are obvious and close at hand, but they are often far off in time or space, requiring special instruments to gauge.

- **Decide where your ship ought to be going.** This is often the most critical issue of leadership. What is the goal, the prize, that you need to keep in sight so that you can respond to the changing currents of

Fuller's Leadership Principles

1. Think comprehensively.
2. Anticipate the future.
3. Respect gestation rates.
4. Envision the best possible future.
5. Be a "trim tab"—an individual who can initiate big changes.
6. Take individual initiative.
7. Ask the obvious and naïve questions.
8. Do more with less.
9. Seek to reform the environment, not man.
10. Solve problems through action.

the environment and keep you on target? The target is your 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?

• **Know where to exert pressure for "moving the rudder" most efficiently.** Once you have mastered the position and direction of your "ship," you will be better prepared to steer it. In the system you are seeking to steer, you will need to identify the rudder and the trim tab. In complex social systems, it is often instructive to ask, What is the rudder of the obvious rudder, or the trim tab of the trim tab?

• **Know how to efficiently exert pressure for "moving the rudder."** 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." He also recognized we all make our own unique contributions, based

"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."

on our skill sets, life history, and available resources. Not everyone can or should go out and invent new types of geodesic domes; rather, each person should be equally inventive in his or her own way.

• **Learn how to continue navigating 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. Drawing on the knowledge and experience from one phase, he was then able to realize even higher levels of creativity and inventive breakthroughs than in the previous phase.

Not every leader is destined to be the same sort of "trim tab" that Fuller was, but every leader can gain valuable insights from his highly leveraged approach and navigation mind-set.

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 did not seek 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. Being true to himself, he dared to go off in directions that the typical, crowd-following individual never dreamed of exploring. His approach was an anti-"Big Man" leader, the opposite of a central, supreme-authority style of leadership. He felt that we all should be leaders—and we *are* leaders, at least of our own lives.

For leaders, Fuller's approach demonstrates that you don't need to have the leader's job or be the expert or have money to make a difference. Each of us should feel empowered to make our own contribution, whether or not we've received some sort of official blessing or sanction. In-

terestingly, 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 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."

Fuller's 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; they 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

Many people continue to mistake money for wealth, but capital itself has become a vast manufactured

Buckminster Fuller: A Comprehensive Observer of History

Richard Buckminster Fuller (1895-1983) was a visionary American who defies easy categorization. He described himself as a comprehensive designer and is perhaps best known as the creator of the geodesic dome. He was a revolutionary thinker in automobiles, architecture, cartography, economics, and more.

Few other passengers aboard Spaceship Earth during the twentieth century were so keenly aware and so deeply appreciative of the extraordinary changes that were unfolding, as if he were 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.

Bucky Fuller was absolutely thrilled to be there, helping nudge things along in ways he alone could imagine. His values and vision of a perfectible society, along with his razor-sharp awareness of social and technological trends and relentless dedication to focus on the *most* important things,

served as the foundation for his wide-ranging contributions and impact.

His emphasis on continual learning, creating, modifying, 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.

—Medard Gabel and Jim Walker

Editor's note: Bucky Fuller was always revered by World Future Society members, and he received the Society's Distinguished Service Award when he participated in the 1982 General Assembly.

Fuller supported the Society from the moment he first learned that it was being organized, but more important was the inspiration he gave others, who in turn influenced still other people.

Without Fuller's influence, the Society would probably not have been founded.



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commodity circling around the globe in search of true 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, a new computer delivering more computing power per dollar, Google delivering broader and faster searches per click, or Dell sourcing component parts from all across the world in order to deliver the cheapest 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 of wealth also made him pragmatically

optimistic regarding humankind's ability to feed and house 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. We can never learn less, we can only learn more; therefore, wealth grows as we increase our understanding of the world, ourselves, and the universe.

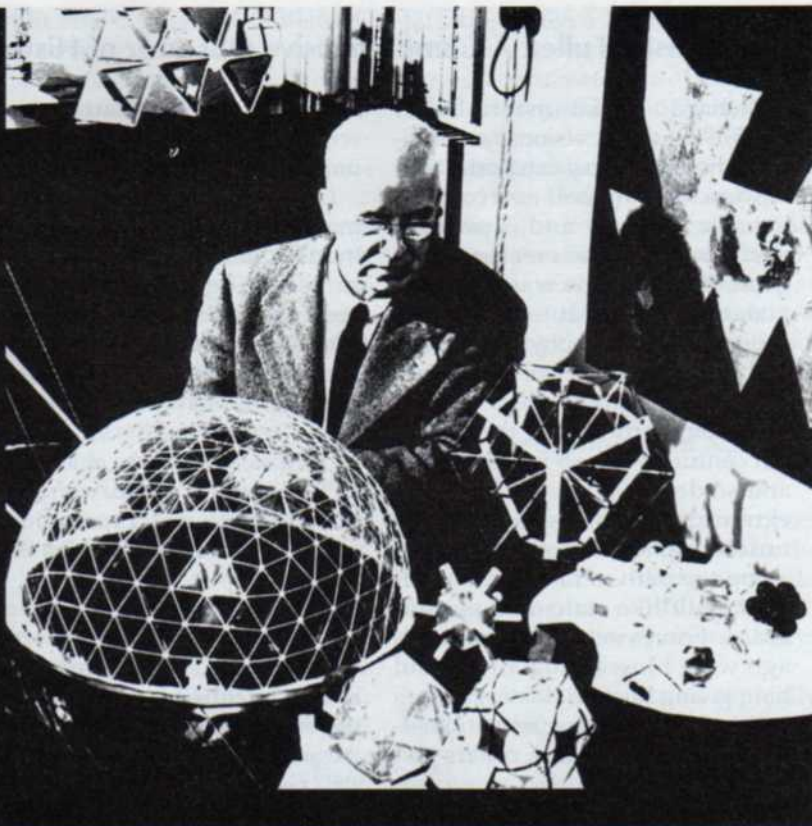
Thus, while the battle over raw materials is a zero-sum game that leads to a scarcity mentality, the wild card in wealth creation is human ingenuity, which can break the zero-sum standoff and allow us to accomplish more and more with less and less. Fuller was convinced that every individual could make a contribu-

tion to this overall cycle of wealth creation. For leaders, this means recognizing and encouraging everyone in the organization to contribute consistently and with inspiration.

9. Seek to Reform the Environment, Not Man

With insights flowing from his trim-tab philosophy, Fuller concluded that the most-effective leverage can almost always be found by reforming the physical infrastructure in which people live and work, rather than by trying to change habit-ridden men and women. Thus, many of his projects focused on large, complex systems, such as housing, automobiles, and energy. If these large-scale systems could be optimized with a view toward maximizing actual human gain rather

"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."



than measured by financial statements, Fuller believed, 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

Fuller was never one to merely theorize about how things ought to be. His creative portfolio, spanning nearly six decades of continuous leadership and invention, is a testament to a hands-on, involved, and action-centered life. Beginning early

in the twentieth century, his life's work 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 U.S. 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. Fuller chose interesting projects to pursue, and the way he measured success was often at odds with the prevailing wisdom and values. Money, for example, was simply a means to further his explorations in "making the world work for 100% of

"Man knows so much and does so little."

humanity," but it had little intrinsic value.

For leaders looking to solve problems, Fuller's example of an action-filled life should serve as tremendous inspiration. His deeds and projects brought him great satisfaction over the years—regardless of their immediate impact. And as his portfolio of efforts grew, they served as inspiration for even greater breakthroughs. □

About the Authors

Medard Gabel is president of Big Picture Consulting, 281 Bishop Hollow Road, Media, Pennsylvania 19063. E-mail medard@bigpicturesmallworld.com.

Jim Walker, a former workshop facilitator with the World Game Institute, is director of business development for MyMedwork and founder of Mind Palace in Philadelphia, Pennsylvania. E-mail jim.walker@mindpalace.com.

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"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."