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An Introduction to Visioning: Part II

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Editor's Note: Following is the second of a three-part series introducing the technique of "visioning." Part I appeared in the June 1996 issue of Actuarial Futures.



The Forces of Change

The future is shaped by a complex interaction of forces whose outcome is in principle unpredictable. Nevertheless we can classify those forces in order to understand the dynamics of change. There are three forces of change corresponding to the three types of futures.

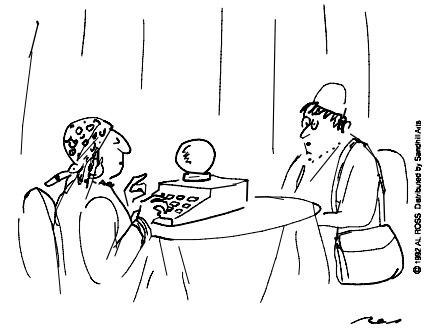
The first force consists of the constants and trends that drive the future in relatively wellknown and predictable directions. Constants are parts of the system that do not change. Trends do change, but slowly over long periods of time. Over the next 50 years, few expect the Constitution of the U.S. to change in fundamental ways. It is a constant in any plausible set of possibilities. The world population, on the other hand, could double in that same time period. It is a trend strongly influencing the future. Together constants and trends form the dataset for extrapolating the likely or probable future.

People who emphasize trends as the guiding force of the future think of the future the way a physicist would, as a track leading into the future. They believe there is generally only one track and that the future is singular. The track is made up of all the "presents" that link one after the other into the future.

That image may be correct as to how it will unfold, but by itself it is not useful for futuring. None of those unique and singular "presents" has happened yet, and we do not know which ones will. From the perspective of the present, the future is much broader than a single track. It is more like a growing set of possibilities that fans out into the future. The forces that drive the future down one area or the other are discontinuities or events, surprising developments that happen suddenly. One of the areas, the probable future, has no surprises (a surprising development in itself); the others are

marked by discontinuities that could go one way or the other. Discontinuities come suddenly in jumps, rapidly directing the future into one or another area. Inventions, market crashes, revolutions are examples of discontinuities. They separate one "era" into another, leading to comments like "You know, before¹/₄" The "before" marked another era, a different world where a different set of rules and relationships applied the "good ol' days," by some people's light. Discontinuities are games of chance, like poker or a roulette wheel. Just like fortunes in a casino, one's future can change suddenly and unpredictably, never returning to the "good ol' days."

Combining constants and trends with discontinuities creates a description of change that is different from the one we usually imagine. Although we admit that sudden change occurs once in a while, we are generally reluctant to include sudden change in our image of the future. It creates too much uncertainty and too



probable and possible future. The probable future for such professionals is that everything works as planned a nominal mission in NASA terminology. They train specifically to execute the maneuvers and run the machines that will achieve the mission objectives. The possible future, however, is that things do go wrong and contingencies do arise. They prepare for the probable future by handling those contingencies in a simulated environment. The difference between these occupations and decision-makers in the real world is that astronauts and nuclear plant operators are running manmade systems. No matter how complicated, there is at least the possibility of mapping a large majority of the possible

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much change. We would rather think of the future as a linear extension of the present. Of course, thinking that way is not very prudent. Driving down the highway at night, one can assume that the road proceeds in a straight line with only smooth curves. But if you forget about the possibility of sharp curves, stoplights or stalled vehicles, then you are in danger of an accident.

Scanning the Future

An area that has adopted a multiple perspective on the future is simulation training. Individuals in highrisk occupations (pilots, astronauts, nuclear plant operators) must be trained to handle a countless number of contingencies. Rather than list all of them, however, they adopt a training regime that includes both the

contingencies. The success of the space program and even the airline industry is evidence that they were successful in anticipating most contingencies. Other, "realworld" occupations, however, enjoy no such advantage. No one has created even a remotely valid simulator for a business or a government agency. People in those occupations have to learn how to operate their organizations in real time, without the benefit of simulation.

They do have one tool, however, that they can use—their imaginations. Just like the test engineers who must think up all the things that could go wrong, they need to scan the possible futures for the contingencies that could continued on happen to upset their plans. They don't

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Visioning

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get to run those contingencies on a simulator and train how to handle them, but that should not prevent them from imagining future possibilities at all. The futures approach is only prudent for those who must make decisions and take actions with longterm future consequences.

One reason that we do not scan the range of alternative futures is our belief that change results from gradual trends rather than sudden events. Trends are occurring all around us; significant events happen rarely. With trends, we believe we will have time to prepare and adjust to change. Although we know we may be caught off guard with events, their relatively low probability gives us a reason not to pay much attention to them.

"If we just stick with trends and discontinuities, however, we lose the third essential force that shapes the future, human choice."

This belief in the preeminence of gradual change also dates back to Isaac Newton and another eminent thinker, Charles Darwin. Darwin cast his theory of evolution in the form of gradual change. His original description of evolution was gradualist: imperceptible changes over

oids from space or new life forms, marked the beginning and end of certain eras. Each era had its own character, its own system, its own rules and relationships for maintaining stability. When the discontinuity came, however, that era ended and with it its rules and relationships, giving way to a new set and on and on.

What is true of biological evolution is also true of social change. Marriage is a discontinuity that starts a family, birth of the first child another. Job change, divorce, death are all discontinuities that change the way a family functions. Organizations go through their equilibrium and discontinuous periods, as do societies. Indeed the human species as a whole is undergoing a discontinuity of growth and productivity that threatens even fundamental planetary processes like the atmosphere and other species. All open systems are subject to discontinuous jumps. Our image of the future must take that into account. Realizing that the current "era" is temporary, that it will change in the long run to a new set of rules and relationships, is part of being prepared for the possibilities of the future.

Human Choice

If we just stick with trends and discontinuities, however, we lose the third essential force that shapes the future, human choice. Trends and discontinuities

You can point that boat wherever you will, throw those throttles forward, and leap forward to the future you choose.

Just as with the other images of change, this image is incomplete. Trends by themselves cannot predict the future because nothing goes on forever. Unforeseen developments can stop or reverse a trend quite suddenly, and you are in "a whole new ball game." On the other hand, the future is not as random as a roulette wheel. We can see the way things are going and be relatively sure of our direction, at least in the short term. And finally, we do have some choice, but it is not unlimited. We still have to account for the forces that are more powerful than we are. On the other hand, human drive has surprised us more than once by its ability to achieve a highly improbable future.

The best image is one that combines all three. My favorite is a small boat, like a canoe, in a large river, like the Mississippi, approaching the delta. The Mississippi delta is a network of canals called passes that carry river water into the sea. Which pass will we go through? The trend is to keep on the way we are going, propelled by the current. But a discontinuity could emerge a log, a storm, another ship that upsets our canoe. Now we are swimming instead of riding a different future indeed! Finally we have some choice. We can paddle to the pass we want, but the river is swift and our paddle is no match for it. We certainly can't paddle upstream, so if we want to choose, we better choose early and keep paddling to our chosen side of the river when we finally reach the passes.

This little image brings out a lot of how change occurs in our lives. First, it combines the three forces of change into one image. Second, it illustrates the power and the limitations of choice in shaping the future. Americans are short-term thinkers. We want change to happen right now. Unfortunately, most of the nearterm future is already determined by the forces at work in our organizations and society. The ingredients are already "baked in the cake," so to speak. Our greatest choice lies in the longterm future where we have a greater number of possibilities to choose from and more time to exert our limited resources to achieve the one we want. In the long run,

long periods created the species we know today. But he did not have access to the fossil record. When paleontologists dug down into the ocean floor, they found a record of a different sort. They found long periods with very little change interspersed with periods of very rapid change. The disappearance of the dinosaurs and the emergence of the mammals was such a jump. The appearance of multicellular organisms was another. At first, there are none, and then they are all over. They called this type of change 'punctuated equilibrium,' long periods of relative stability punctuated with periods of rapid change. The discontinuities, whether aster-

happen to us, but choice allows us to get our two cents in as well. Choice is not unlimited. We are bound by the conditions of the current era, but within that, we still have some "wobble room." We have the discretion to apply our time and resources to one set of priorities or another and hence affect the future differently. Those who emphasize human choice are enamored of the human potential to affect change and to create one's future. They emphasize the power of commitment and united action. "We shall overcome" is a statement about the power of human choice. The image is one of a powerful boat on the open sea.

"If we just stick with trends and discontinuities, however, we lose the third essential force that shapes the future, human choice."

water erodes rock even though they are no match in the short run. Longterm commitment to a desired future will more often be successful than shortterm commitment to a series of desired futures.

An effective vision must be about the longterm future. It has no chance of being achieved rapidly. That is hard enough. But the harder part is to sustain the commitment to achieving it over the intervening period. We too soon forget our dreams, and groups are worse, pelted by different leaders, fads and fashions, changes in membership. As Stephen Covey says, "The urgent drives out the important." We are distracted from our goal. Visions, to be effective, must be far out and long term, but they must be practiced everyday.

Thinking about the Future

Just as there are three types of futures and three forces shaping the future, so there are also three ways of thinking about the future. The whole set is represented in Table 1.

The probable future, the one most people think about, is shaped by constants and trends. Those forces are analyzed through the standard techniques of science and history. "History repeats itself." The aphorism is partially true. It would be more accurate to say, "The future will be like the past, only different." We can find analogues to present conditions in historical periods. New technologies often follow predictable paths of innovation, acceptance and maturity. Political trends cycle back and forth like a pendulum. People see similarities between the transition from an agricultural to an industrial society and

TABLE 1

Futures	Forces	Thinking	Techniques
Probable	Constants Trends	Definite Scientific	Historical analogy Extrapolation
Possible	Discontinuities Surprises	Speculative Imaginative	Scenarios
Preferable	Choices Images	Visionary Empowered	Visioning Strategic planning

now to an information society.

Mathematics and computer simulation provide more exact approaches to extrapolate current trends and predict the probable future. Adjusting the parameters in the mathematical models, one can also create some alternative futures. Those alternatives appear in a rather narrow range, however, and do not provide any genuinely new material. They are usually more or less of the same elements from the probable future. Most of the professionals who devote themselves to studying the future (economists, demographers, market researchers, planners) use these techniques to understand the probable future and closely related alternative futures.

To get really different futures, one has to engage the other side of the brain (to use the wellworn metaphor). Imagination is the source of truly novel alternative futures, but the use of imagination is not promoted in many aspects of society. Artists, designers and inventors are praised for their imagination, but us regular folks who work in regular organizations are not expected to use our imagination. In fact, we are actively discouraged because it makes life tougher on the boss and the organization. They don't like having to deal with all

those "troublemakers" making up all that crazy stuff instead of "doing their jobs." As a result, imagination gets a bad rap. "Real forecasters don't use imagination. We just stick to the facts."

Sticking to the facts is a sure method for missing a lot of the future and most of the interesting and important stuff. Mathematics is great for generating new views of old data, but the new view was always contained in the old data. Nothing really new comes out. For novelty, one must draw on the creativity inherent in human thought, the ability to think of things in entirely new ways, to imagine eras with completely new rules and relationships. Right away there is the objection, "But how do you know these things will happen?" And right away there is the answer, "You don't, but something brandnew will happen in the future. (It always has.) So we believe that thinking about new things is better than not, even though the exact things we are thinking about may not really happen."

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Chairperson's Corner

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might not be easy. There are some wonderful articles in those old issues. One of the best I found was: "The Dawn of the Third Millennium" by James C.H. Anderson in Issue Number 8 (June 1988). And there are some other fascinat-

ing articles by actuaries who understand and enjoy applying futuristic techniques. I wish there were more.

But there was still a lot I wanted to know. For example, I wondered who the actuaries are who choose to belong to the Futurism Section and what they hope to get out of it. My impression had been that Futurism Section members were mostly those in more senior positions, those who

need to get the "big picture." I expected to find actuaries whose work involves planning and projecting for long periods and who had risen above the level where the basic models employed in actuarial science are a complete solution.

Much later, the SOA staff provided me with a listing of the Section members, so

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