BarterNews

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Unlimited Wealth!

Paul Pilzer...

Paradigm-Buster Economist Sees No Limit To Wealth In Our High-Technology Age

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"Information is the key to modern economic activity, a basic resource as important today as capital, land, and labor have been in the past."

– W. Michael Blumenthal
Former U.S. Treasury Secretary

Coming Soon...

UNLIMITED WEALTH

Paul Pilzer is an interesting guy–quick, smart, energetic and enthusiastic. He's virtually a mirror of his writings and business philosophies. Our telephone conversation took place shortly before the 4th of July weekend, during his "hibernation" in Utah, where he's busily working on his next book. (Due out a year from now, it'll consist of 75 or so mini-chapters on various topics he's ascertained as important from audience feedback garnered from his cross-country speeches.)

Our discussion touched on many subjects, but of particular interest to *BarterNews* readers was Pilzer's interest and positive acknowledgement of last issue's article on UltraTrade. "It's very exciting" he exclaimed, noting that the company's technology and ability to process enormous amounts of information, as well as providing an inexpensive conduit for distribution, assures it a successful future.

Pilzer continually referred to "efficiency in distribution" in our discussion. From his perspective it's one of the last remaining frontiers to conquer. And he sees big changes ahead. One will be direct deliveries to the consumer from many of today's major manufacturers, not unlike what the computer manufacturers are already doing. And the successful retailer in the late 1990s will not just be a discounter. Instead there will be a reverting back to how business was done in the 50s, where the focus will once again be two-fold. First it'll be a situation of "educating the shopper" as to what they need. Showing them the many new products and explaining how they work. And secondly, telling them why they're needed. This service will be as important as the active distribution of the product itself. (Home Depot and Amway are examples of the move in this direction.)

We're focusing this issue's cover story on Pilzer's book, *Unlimited Wealth* because it explains how technological change is the driving force behind our economy. And despite a temporary slowing in the economy, we are at the beginning of a period of economic expansion of unprecedented proportions. The following summarization is by permission of the publisher, Crown Publishers, Inc., N.Y.C., and is taken from *Soundview Executive Book Summaries*, Bristol, VT.

Bob Meyer, Editor

Paul Zane Pilzer earned his college degree in three years when he was 19, his MBA from Wharton Graduate Business School in 15 months at 22, and was appointed an Assistant Professor at New York University at 24.

Pilzer became the youngest officer at Citibank at age 22 and their youngest Vice President at age 25. While at Citibank, he started several entrepreneurial businesses and earned his first $1 million before he was 26.

Today, he's the author of two national best-selling books, a Contributing Editor of two economic journals, an Adjunct Professor at NYU, and the Managing Partner of a $300 million real estate and information company. Pilzer is a frequent lecturer around the globe and his works have been published in Japan, Taiwan, and the Russian Republic.

In 1985, Pilzer testified before the U.S. Congress, warning that the S & L problem would grow to a $200 billion disaster. Congress didn't listen and in 1989 he wrote *Other People's Money (Simon & Schuster, 1989)* which was critically acclaimed by *The New York Times, The Economist* magazine, and Nobel prize winner John Kenneth Galbraith.

In 1991 he wrote *Unlimited Wealth (Crown Publishers, 1991)* which explains how technological change is the driving force behind our economy and why we are at the beginning of a period of economic expansion of unprecedented proportions.

Paul Zane Pilzer views the world as providing unlimited resources that permits the possibility of wealth for all! He says, like the ancient alchemists who tried to turn base metals into gold, we now can create great value where little existed before... so today there is no need to pretend—rather, this is the way the modern world now works. Thanks to the "magic" of technology, we can expand the supply of resources available to us as well as create new materials to replace those resources the earth and cartels make hard to get.

Technology makes it possible to turn the raw materials of nature into elegant and sophisticated devices more efficiently than ever. For example, we can make computers from sand (the raw material from which silicon chips are made). We're playing an entirely new game that has changed enormously in the last few years. And nowhere quite so dramatically as in economics and business.

While is seems unbelievable, Pilzer says ours is a world of unlimited resources, one of unlimited wealth. In the Alchemic world, as in the economic world, a society's wealth is still a function of its physical resources. Now, however, both the definition and the supply of those resources are almost exclusively controlled by technology.

This new economy can cause confusion. For instance, in 1981 the U.S. Congress passed the Economic Recovery Tax Act (ERTA), which lowered individual income tax rates and provided tax incentives to businesses purchasing new equipment. Economists warned that the policy would lead to an economic collapse. But that didn't happen: The gross national product continued to grow unabated.

Clearly something was going on that no one could explain. It was, in fact, Alchemy at work.

The ERTA forced corporate America to close the technology gap. In Alchemic terms, that's the gap between the level of *available* technology and the level of that technology actually in use.

With tax incentives directly connected to acquiring new equipment, America's corporations retooled. And the increased productivity and lower production costs, the inflation rate decreased, the supply of capital increased, and interest rates remained stable.

The Impact of Technology

Historically, levels of technology have been measured in terms of ages (Iron, Bronze) and revolutions (agricultural, industrial) which usually lasted millennia, centuries, or decades. Technology, the driving force of a nation's economy, now changes by the moment.

Technology, the driving force of a nation's economy, now changes by the moment.

Traditional economics treats technology as a constant, a view clearly outdated. In contrast, consider these tenets of the Theory of Alchemy:

1. Technology is the major determinant of wealth because it determines the nature and supply of physical resources.

2. The advance of technology is deter-

The advance of technology is determined mainly by our ability to process information.

mined mainly by our ability to process information.

3. The backlog of unimplemented technological advances (the technology gap) is the true predictor of economic growth for both the individual and society.

Technology affects both sides of the traditional economic equation but it has a greater impact on the demand side. John Maynard Keynes predicted in the 1930s that people would lose their incentive to buy more after fulfilling basic needs, causing demand to fall. The opposite is true–the more people earn, the more they spend. Indeed, John Kenneth Galbraith said, in 1958, "In the affluent society, no sharp distinction can be made between luxuries and necessities." Technology provides an ever-increasing array of new products that may start out as luxuries but soon become necessities–like the fax machine.

Supply-Side Alchemy

In 1972 the shocking conclusion of the enormously influential study *The Limits to Growth* was that the world's physical resources would be exhausted sometime in the next decade and most of humanity could be wiped out before the year 2100. The world's population was growing at a rate of about 2 percent per year and industrial output was rising by 7 percent annually–both too fast to save our resource base.

Economic growth, which had always been regarded as the solution to all woes, suddenly seemed to be the problem. Even the skeptics' doubts about the report were soon washed away: Arab oil producers raised prices and cut off deliveries to the West. The future looked grim.

Between 1973 and 1981, soaring energy prices sent the United States into some of the worst recessions in four decades. Yet the world didn't come to an end.

That's because the study reached the wrong conclusion. The world's physical resources aren't decreasing. On the contrary, our *effective* supply of resources–oil, natural gas, copper, silver, gold–is increasing. What's more, prices have tumbled as supplies have increased.

We're richer than we've ever been before. This is difficult to believe. You probably feel you have to work harder than ever simply to make ends meet. But the fact is you work significantly less than you used to in order to get what you want. Fact: In 1970 Americans worked three times as many hours to earn enough to buy a TV as they did in the late 1980s.

How is it that we have more resources at lower prices than ever before? Alchemy.

What matters is not the particular resources but our growing ability to make more and better use of whatever is available. Wealth is the product of physical resources and technology, and of these two technology is the most important.

The Theory of Alchemy recognizes that physical resources are neither scarce nor finite. What matters is not the particular resources but our growing ability to make more and better use of whatever is available. Wealth is the product of physical resources and technology, and of these two technology is the more important.

This profound truth can be expressed as a simple mathematical formula:

$$W=PT^n$$

W stands for Wealth, P for Physical resources, T for Technology, and ^{n} for the exponential effect of technological advances on themselves.

The formula has enormous implications, the most important of which is this: We no longer have to try to slice the same small pie. Instead, we can find a way to bake a new and bigger one.

(1) By enabling us to make productive use of particular raw materials, technology determines what constitutes a physical resource.

Without technology, physical resources have no value. The discovery of the uses of fire made wood worth collecting. The development of milling and baking made grains worth cultivating. And the development of smelting made ores worth mining.

Technology, too, has made important resources of commodities as mundane and ubiquitous as sand (the raw material from which silicon chips are made) and sea water (from which such minerals as magnesium–and even gold–can be extracted). At the same time, technology has actually diminished or erased the value of some former key resources like natural rubber, tin, copper, and sheet steel–all of which have been supplanted to a degree by substitutes made possible by advancing technology.

There's always an existing base of currently useful physical resources. A hundred years ago, however, this list

would have looked very different from our resource base in the 1980s. You'd have seen ivory and whale oil on the list, but not silicon, bauxite, and uranium. So the resource base has never been fixed. Moreover, the supply of current resources is always expanding.

The *amount* of a resource is how much of it physically exists in the universe. But the *supply*, how much is known to exist and is available for our use, is determined as much by how we use resources as by the quantity available. The actual amount of oil buried in the earth is irrelevant. All that matters is the supply.

(2) Technology determines our supply

Pilzer Is A Paradigm-Buster

The ideas espoused by economist Paul Zane Pilzer in his book, Unlimited Wealth: The Theory and Practice of Economic Alchemy, *are far different from the traditional "economics" thinking which, for decades has focused on the systematic study of scarcity.*

Look no further than a quotation from the world's most popular economic textbook, Economics *by Paul Samuelson: "Economics is the study of how people and society choose to employ scarce resources that could have alternative uses in order to produce various commodities, and to distribute them for consumption."*

What Pilzer calls "economic alchemy" is derived from principles of abundance, not scarcity, because technology has liberated us from the zero-sum game (the idea that for someone to gain, someone else must lose) of traditional economics.

Pilzer says that instead of finding better ways to slice up the same old pie, in the alchemic world one concentrates on baking a new pie big enough for ALL to share. In short, Pilzer contends that scarcity thinking is a learned behavior which is no longer justified, because of today's continual technological advances.

Intellectual Assets Most Important

Intellectual assets are infinitely more important than physical assets. This has always been so. But during the Industrial Era, most people relied primarily on physical assets. If we look 20 years backward, it's clear that many industries which today are grievously suffering were then placing their reliance on physical assets. For example—banks, railroads, the steel companies and the American automotive manufacturers.

Labor Is An Asset

Labor is a capital asset, not an expense. Return on invested capital continues to be a useful primary calculation only when we realize that physical assets cannot be justified except as a way of increasing the yield/effectiveness of intellectual assets.

Everything Changes

The only enduring business is the business of change. When a business derives all or most of its income from a restrictive competitive position (such as a trademark/patent) that business is doomed. Exploitation of scarcity is no longer a valid strategy. Today's markets have no corners.

Imagine A Need and Then Create It

Once upon a time, there was a business law which stated that "Success comes to those who find a need and ethically fill it." That law has been repealed by this more contemporary expression: "**Imagine** a need and then create it." Today the line which separates "luxuries" from "necessities" is blurred. We lose sight of the fact that this has always been true. For example, when Henry Ford introduced the cheap automobile, there was no need for it. There were precious few suitable roads. It was difficult to find fuel or maintenance. But in less than 20 years, the automobile had started to become a necessity. Today (in much less time) the same thing happened with the fax machine.

Transformation Accelerated

The transformation of a product or service from the status of "luxury" to that of "necessity" has, over the past 100 years shrunk from 35 years to only a few years. Some futurists anticipate that this transformation may soon be measured in a handful of months. (The attitude of children toward a fad game is an illustration.)

While all of this has been happening, there has been an incredible realignment—economically and politically. We used to believe that the wealth of a nation was determined by its physical resources. But today we must explain how the tiny island-nation of Japan became a world industrial power despite the total absence of coal, iron ore and not even a teaspoon of oil.

Improvement and Expectations

When people perceive that their qualities of life are improving, *the result*

of existing physical resources by determining both the efficiency with which we use resources and our ability to find, obtain, distribute, and store them.

To increase the supply of a physical resource we can (1) improve our ability to find, obtain, distribute, and store it (supply technology); and we can (2) improve the efficiency with which we use it (use technology).

is not complacency. Instead— they experience a quantum increase in their expectations.

If we compare 1970 with 1990, we find that in 1970 the average American had to work three times more hours to earn enough to buy a television set. Twice as long to afford a suit of clothes. And 25% longer to earn a new car. During the same 20 years, the square footage in the average American home increased by 30%. There are literally thousands of examples of effort being amplified in a way that expands rewards and shrinks time.

These examples illustrate a profound principle: *The value of physical resources is derived from technology.* For example, consider the South Sea islander in the late 19th century who learned to weave palm fronds in a certain way that assured a water tight roof. Palm fronds were indigenous to the island. They had no value until the technology of weaving them gave them value. The principle described can be expressed algebraically:

$$W=PT^n$$

In this equation, let "W" represent wealth. Physical resources are represented by "P" and technology by "T". The "n" represents the exponential effect of technology advancing on itself. This simple formula has enormous implications—not just in terms of improving our understanding the economic basis of society... but as the key to developing more effective strategies for our individual lives. *This formula tells us that we do not have to play a zero-sum game of scarcity.* Instead of finding better ways to slice a pie of known weight and diameter, we can find ways to bake a new and better pie.

It follows, therefore, that technology defines what constitutes a physical resource. (Consider the palm fronds.) It's useful to also remember that until Gottlieb Daimler and Carl Benz developed the first lightweight internal combustion engine, oil was not considered to be a valuable resource. As a matter of fact, gasoline was thrown away as a waste product derived from making lamp oil.

Technology is the Key

Technology also determines our supply of existing physical resources because it is technology which determines our ability to find, obtain, distribute and store these physical resources. (For example—technology permitted automobile manufacturers to discard the mechanical carburetor in favor of electronic fuel injection. One result of this transformation was that our use of gasoline dropped by 30% or, if you prefer, our supply of available gasoline increased by 30%. As a footnote to this transformation, it's useful to point out that a typical fuel injector costs about $25 to manufacture. But it replaces a $300 carburetor.)

Historically, it's clear that throughout our history, there have been periods of relative technological calm interrupted by intense periods of technological achievement. Why? And why do different cultures advance technologically at separate rates? It now seems clear that a society's technological advances are almost entirely determined by its ability to process information. Information is the raw material of technology. W. Michael Blumenthal published an article entitled *The World Economy and Technological Change* in the respected journal, *Foreign Affairs,* in 1988. He noted that, "In the 17th century, it took Kepler four years to calculate the orbit of Mars. Today a microprocessor can do it in four seconds flat." Imagine the impact of this happening tens of thousands of times each day, every day, with big and little events throughout our economy.

It is technology that sponsors the transformation of a product/service from "luxury" to "necessity". The technological introduction of electric washing machines changed our attitude about what constituted cleanliness and, thereby, the materials, styles and colors that were acceptable in shirt-making. The population of America is growing at a slow and predictable rate. But the growth in the number of telephones is nearly 500% higher than the expansion of population. Technology creates new features which, in turn, create new applications. These applications help people to "need" more instruments. This process is aided by the technological fact that unit cost drops as the size of the manufactured base expands. Thus, technology influences the level of demand for a product/service by influencing the price by which it can be sold.

What people want is a function of what is available. What is available is technologically determined.

Most economic growth is the result of technological revolutions in the marketplace, not improvements in product, service or distribution.

The true predictor of economic growth for an individual, a corporation or a society is the size of the technology gap. That is—the degree to which an individual or a company or a society is *not* using available technology. **BN**

Supply technology has the more direct impact on our resource base. Consider the supply of oil. Over the past two or three decades, advances in geology led to the discovery of the huge Alaskan oil field. Improved drilling techniques allowed producers to delve into the earth's crust to a depth of six miles instead of a mere five to ten thousand feet. Development of the super-tanker and advanced pipeline construction provided for more rapid distribution. Last, storage tanks made it possible to store heating oil in our homes and put gas stations on many street corners.

But use technology can also expand the resource base by improving the efficiency with which we employ a particular resource. For example, in response to the so-called fuel shortages of the early 1970s, auto manufacturers replaced $300 carburetors with $25 computerized fuel injectors. By doing so, they doubled the fuel efficiency of new cars in less than a decade and increased the effective supply of gasoline by well over a third.

As a result of the advances in technology use that were achieved in the 1980s, the world's effective supply of energy resources will be a full 50 percent larger in 2000 than it was in 1980.

(3) The rate at which a society's technology advances is determined by the relative level of its ability to process information.

Former U.S. Treasury Secretary W. Michael Blumenthal regards information as "the key to modern economic activity–a basic resource as important today as capital, land, and labor have been in the past." But developing new information is only half the battle; information is useful only to the extent that it can be efficiently distributed.

Following the invention and development of writing five thousand years ago and the printing press only six hundred years ago, the third major advance in information processing is the computer. While its speed is an important factor, the computer's true value lies in its ability to sort through and collate data, to link different sectors of society through communications networks, and to transmit the information through these networks.

Even with this technological advancement, the main constraint on innovation today is the ability of engineers and entrepreneurs to make use of all the new developments. To increase the size of the pie, we must continue to improve our ability to process information so that technology will advance at a faster rate. The result will be an increase in the effective supply of existing physical resources and the definition of entirely new ones–increased, unlimited wealth for everyone.

As a result of modern technology, we effectively have access to an unlimited supply of resources. What, in practical terms, does that really mean? For one thing, the key to achieving wealth is no longer the accumulation of resources. Many who attempted to exploit the fear of resource scarcity have already learned that lesson.

The main constraint on innovation today is the ability of engineers and entrepreneurs to make use of all the new developments...we must continue to improve our ability to process information so that technology will advance at a faster rate.

The key to achieving wealth is no longer the accumulation of resources, today it's efficiency in distribution.

In the 1970s, various cartels tried to corner markets by dictating the price and supply of such basic goods as bananas, copper, rubber, and timber. By the mid-1980s, all of the cartels had been driven out of business. They had mistakenly believed that nations couldn't survive without these commodities, and that they'd pay any price rather than do without the goods.

As prices rose, consumers began looking for substitutes. For example, as the price of copper rose, the telecommunications industry accelerated the development of new technologies such as fiber-optics that didn't depend on copper wiring and cable. By the end of the 1980s U.S. telephone companies had installed 1.5 million miles of fiber-optic cable.

In the Alchemic world, the market has no corners. As a result of technology, one can find a substitute for virtually any raw material.

If accumulation of physical resources through attempts to corner the market doesn't lead to wealth, what does? Efficiency in distribution.

Technology has driven actual production costs of a product down to an average of just 20 percent of its retail price. The other 80 percent lies in distribution costs and profits. With few exceptions, we haven't applied to our distribution networks the technological advances that have so profoundly transformed the rest of the supply pipeline. On the supply side of the Alchemic equation, improvements in distribution have the potential to yield tremendous financial gain.

A notable exception was Sam Walton.

Because distributors weren't eager to service his first Wal-Mart in tiny Rogers, Arkansas, he started his own distribution system. Implementing the latest advances in data processing and communications technology, he constructed the most sophisticated automated distribution system the world had ever seen.

As a result, Wal-Mart has grown, from its humble beginnings in 1962 to a $45 billion-a-year enterprise, and passed Sears and Kmart on its way to becoming the largest chain in the world.

Demand-Side Alchemy

Economists and Alchemists alike would agree with the Elizabethan philosopher Francis Bacon who observed, "Money is like mulch, not good except it be spread." The point of money is to be spent.

Supply is useless unless it can be matched with some corresponding demand. If consumption doesn't keep pace with rising income, prices fall, jobs are lost, economic growth grinds to a halt.

Fortunately, demand does keep pace with income. Real per capita income in the U.S. rose 174 percent between 1940 and 1987, while real per capita consumption spending rose 172 percent.

As advancing technology provides us with new products or processes which induce changes in our basic behavior, it both defines and determines the nature of human demand. Before the invention of the electrically powered agitator-type washing machine in 1922, for example, people simply didn't wash their clothes all that often. Most clothing was constructed to require a minimum of laundering. Shirts came with detachable collars and cuffs.

But once it became possible to wear a clean shirt every day, without tremendous effort, freshly laundered clothing became a staple of middle-class decency. Technology created a need that previously hadn't existed, and by the mid-1930s, detachable collars and cuffs were a thing of the past.

(4) By providing us with new products and processes that change the way in which we live, technology determines what constitutes a need, and hence the nature of consumer demand.

The new needs technology creates–how many salesmen can't live without a car phone?–generate demand in self-fulfilling cycle that will continue as long as technology continues to advance.

When consumers' quantity demands those for more of what they already have (food, clothing, etc.)–are satiated, quality demands kick in. Quality demand is the desire for a new and different model of a product.

From 1960 to 1980, the number of homes containing a television set rose from 90 to 98 percent. Then quantity demand kicked in: The number of homes containing two or more televisions rose from 11 to 60 percent. With quantity demand satisfied, consumers yearned for better TVs–those with giant screens, remote control, and stereo sound. Consumers, it seems, replace some of their quantity purchases with the improved products made possible by advancing technology.

As long as technology continues to advance, better products will be developed every year, and the process will start all over again. By purchasing the new products technology makes available, you are, in effect, boarding an Alchemic train of virtually unlimited demand.

As long as technology continues to advance, better products will be developed every year, and the process will start all over again.

In the Alchemic world of unlimited technology, there is no limit to your "real needs." While economists may argue that what is available is a function of what you want, the Alchemist recognizes that what you want is a function of what is available. New products plant new ideas in your mind, but they also provide you with choice–one of the most potent stimulants of demand.

(5) Technology determines the level of consumer demand by determining the price at which goods can be sold.

The economist will argue that, since people really don't like change, they'll only buy new products or try new ways of doing things if the cost/benefit ratio is irresistibly favorable.

The Alchemist recognizes that new products create their own need and the only constraint on demand today is price. If the price is right, you'll suddenly find you have a need for that newfangled gadget you've heard about; At some price, you may even want more than one.

Sure, anything will sell if it's priced cheaply enough. But will the seller make a profit in the process? The economist will answer, "not necessarily." The Alchemist, knowing that technology is the driving force of an economy, will answer yes. That's because of the power of technology to lower the expense of materials and labor that go into production of a product.

Production costs are a relatively small component of the total cost of making finished products today. Fixed expenses are far greater; they remain the same whether you produce one item or a thousand. So, the more items you produce, the lower the cost of each unit, and the lower price you can charge. And the lower the price, the more demand there will be for your product and the greater the likelihood that you'll be able to sell the huge quantity of items you

produced.

An example demonstrates the validity of this approach. In the early 1960s, Fairchild Semiconductor tried to build demand for its 1211 transistor. To compete with RCA's nuvistor tubes, which were selling at $1.05 each, Fairchild chose a rather unconventional approach, slashing the price of its newly invented transistor from $150 per unit to $1.05 per unit at the very beginning. Fairchild was betting that the enormous cut would spur a huge demand to justify raising production levels so unit costs would fall low enough to make the effort profitable. It worked. In 1965 Fairchild commanded 90 percent of the UHF tuner market in the United States, and production levels were so high that the price dropped to fifty cents each.

All of this is standard practice among smart manufacturers. The Japanese used it to take the VCR market away from the U.S. companies that invented the device. Though called "dumping" by some it's not unfair because the market still has to come through for you.

The Alchemic entrepreneur knows that today's consumers most likely won't want tomorrow what they want today. Consumer needs and wants have always been flexible, but in recent years the rate of change in the marketplace has begun to accelerate. Products evolve, mutate, and change at speeds undreamed of in the past, partly because consumers learn about new products at the speed their television sets provide the information. It's easy for them to decide they want something now.

Those who make a good product and have a steady market are, paradoxically, at risk in this new world–either someone will come up with a better product at a lower cost or a new product may obliterate demand for what's available. Blazing new trails has always been harder than improving old roads. But in the Alchemic future, the people most likely to prosper in business will be those who devote themselves to developing new products.

Take the record business, for example. Despite great improvements in the price and quality of vinyl records and stereo turntables, the industry is well on its way to extinction. The reason is the coming of compact-disc technology. By 1989, just five years after their debut, CDs were outselling vinyl records by a hefty margin and the demand for CD-players had almost completely replaced the demand for conventional turntables.

Alchemists recognize that, regardless of the product being sold, they are in the business of change. The nature of demand is infinitely plastic, the level of demand is unlimited, and there is no end to what people can, will, and must have.

The Technology Gap

When President Kennedy announced in 1961 that the U.S. would land a man on the moon by the end of the decade, the technology to perform this feat didn't exist. But as long as the consumer (in this case, the government) was willing to pay the price, it was assumed that technology could deliver. It did.

This is the essence of Alchemic management. The new Alchemists have such faith in technology that they design products without worrying about the current level of technology. Their only concern is their reading of the marketplace. To survive in the fast-changing Alchemic world, you must anticipate what is coming and base your plans on what you think will be–not on what already is.

Those who make a good product and have a steady market are, paradoxically, at risk in this new world, where (regardless of the product being sold) we're all in the business of change.

(6) The immediate economic potential for an individual, an industry, or a society can be explained by examining the technology gap, the best practices possible with current knowledge and the practices in actual use.

Traditional economics views technological advance as a byproduct of economic growth. The Alchemist sees this from the opposite perspective: Economic growth is a byproduct of technological advance.

Economic growth is a byproduct of technological advances.

Technology is progressing so rapidly that we are simply unable to make use of everything it offers us. How many manufacturers use the latest CAD/CAM methods to design and fabricate products? How many retailers track inventory and customer preferences with point-of-sale scanners? Few of us question our routines with the regularity or the rigor that our fast-changing culture requires. This is, of course, the essence of the technology gap.

Alchemists recognize that a wide gap signifies room for growth. They assume as a matter of course that the route currently used–even if it's presently the cutting edge–will sooner or later no longer be the best one. They are always on the lookout for the better way that will appear.

R-I-Ts

The better way that Alchemists search for is an R-I-T, that is, a Ready-to-be Implemented Technological advance. An R-I-T already exists; it's available

now. But out of ignorance or laziness, we aren't making use of it. Some current R-I-Ts are computerized fuel injectors that haven't replaced mechanical carburetors, radial tires that haven't replaced bias-ply models, or electric typewriters that haven't replaced manual ones.

An R-I-T is user transparent. It's virtually the same as the product it was meant to replace. The only thing that has changed is that a job that was more difficult is now easier. A person who can use a rotary phone, for example, will find the push-button model easy to use. No new skills are needed, but the user can dial faster and more accurately.

The implementation of R-I-Ts usually drives most start-ups. If you're going to start a business today, it's not enough to determine that you're going to be as good as your competition. Consumers no longer have any patience with the status quo–so you've got to be able to promise to provide your product or service better, cheaper, or faster–and preferably all three.

The new Alchemists stay on top of change by studying their industries to see if there exists a technology gap they can exploit. Even if they find one, of course, technology doesn't stand still. So how do the Alchemists get a fix on what will be happening the day after tomorrow?

B-R-Ts

The answer lies in our Basic Research Technological advances, or B-R-Ts. Studying and understanding the nature of R-I-Ts can help us determine what's around the corner. By analyzing our B-R-Ts, we can preview what to expect over the next hill.

Real advances in technology are links in a continuing chain of innovations. This is the multiplier effect of technology–every new development that we can identify as an R-I-T becomes the basis for an array of new technologies. In other words, it becomes a B-R-T. Over time, the B-R-T yields another R-I-T, and the process accelerates and widens with each cycle until it seems to be continuous.

To see how this cycle works, let's look at the development of a particular technological advance. A development laboratory discovered that silicon is a better semiconductor than germanium. This discovery became the basis of a B-R-T. Eventually, after several years of refining the development, the lab figured out a way to design and manufacture a new silicon semiconductor. The finished products represents a new R-I-T.

Five new companies, after learning of this R-I-T, use it as a B-R-T to develop a new finished product of their own, silicon transistors. The development lab's R-I-T became the transistor maker's B-R-T which used it to create a second R-I-T.

Assume each of the five companies has twenty customers who use transistors in circuit boards, TV oscillators, thermostats, and other components. The one hundred component makers can use the silicon transistors as a B-R-T to develop new and better circuit boards, TV oscillators, thermostats, and other components, representing yet another new R-I-T. By keeping an eye on the latest B-R-Ts, the Alchemist stays ahead of the game–which may be the minimum necessary to survive. ***BN***

Education Must Never Stop

Paul Zane Pilzer has sympathy for workers displaced in today's economy. But rather than protecting unproductive jobs, he believes society must begin to educate displaced workers.

"You have to understand the first rule of Alchemic labor theory," Pilzer says. "The only way wealth is created is a two-step process. First, even though a man loses his job to a machine, we still get the benefit of the work. And then he gets another job." Wealth is created, Pilzer maintains, because society now receives the output of both the old and the new job. "That's how we've gotten so rich."

Society has to get that worker back into a job as soon as possible. That's the hard part, because in the new Alchemic world success has less to do with mastering a specific task than with increasing our competence in basic skills–reading, writing, calculation, speaking, listening, and reasoning. Why? Because jobs in this dizzying age become obsolete rapidly, leaving only the flexible prepared for constant change.

Pilzer's solution: "We need to do more than just educate people in school–it doesn't work any more. We need to have people go to school one day a week for the rest of their lives."

Real advances in technology are links in a continuing chain of innovations...this is the multiplier effect of technology.

CLASSIFIEDS

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