The following ideas are by Peter Drucker in *Post-Capitalist Society*, *The Daily Drucker* and *Management, Revised Edition*

How is it possible to work toward horizons that aren’t on your mental radar — at the right point in time?

Larger Thinking Broad and Thinking Detailed

Intelligence, Information, Thinking

“Most of the mistakes in thinking are mistakes in perception.”

Seeing only part of the situation — broad

Jumping to conclusions

Misinterpretation caused by feelings” — Edward de Bono
Awareness without **action** is useless.

The **MEMO** they – the **enemies of the future** – don’t want you to **SEE**

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**Knowledge industries, knowledge work and knowledge worker**

“The terms knowledge industries, knowledge work and knowledge worker are nearly fifty years old.

They were coined around 1960, simultaneously but independently – the first by a Princeton economist, Fritz Machlup, the second and third by this writer.

Now everyone uses them, but as yet hardly anyone understands their implications for human values and human behavior, for managing people and making them productive, for economics, and for politics.

What is already clear, however, is that the emerging knowledge society and knowledge economy will be radically different from the society and economy of the late twentieth century.” Chapter 4, Management, Revised Edition

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**[Transformations in Western History]**

EVERY FEW HUNDRED YEARS in Western history there occurs a sharp transformation.

We cross what in an earlier book (**The New Realities** (1989)).

I called a “divide.”

Within a few short decades, society rearranges itself – its worldview; its basic values; its social and political structure; its arts; its **key institutions**.

Fifty years later, there is a new world.

And the people born then cannot even imagine the world in which their grandparents lived and into which their own parents were born.

We are currently living through just such a transformation.

It is creating the post-capitalist society, which is the subject of this book.

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WITHIN ONE HUNDRED FIFTY YEARS, from 1750 to 1900, capitalism and technology conquered the globe and created a world civilization.

Neither capitalism nor technical innovations were new; both had been common, recurrent phenomena throughout the ages, in West and East alike.

What was brand new was their **speed of diffusion and their global reach across cultures, classes, and geography**.

And it was this speed and scope that converted capitalism into “Capitalism” and into a “system,” and technical advances into the “Industrial Revolution.”

This transformation was driven by a radical change in the meaning of knowledge.
In both West and East, knowledge had always been seen as applying to being.

Then, almost overnight, it came to be applied to doing.

It became a resource and a utility.

Knowledge had always been a private good.

Almost overnight it became a public good.

For a hundred years during the first phase—knowledge was applied to tools, processes, products.

This created the Industrial Revolution.

But it also created what Karl Marx (1818-1883) called “alienation,” new classes and class war, and with them Communism.

In its second phase, beginning around 1880 and culminating around the end of World War II, knowledge in its new meaning came to be applied to work.

This ushered in the Productivity Revolution, which in seventy-five years converted the proletarian into a middle-class bourgeois with near-upper-class income.

The Productivity Revolution thus defeated class war and Communism.

Today, knowledge is being applied to knowledge itself.

This is the Management Revolution.

Knowledge is now fast becoming the sole factor of production, sidelining both capital and labor.

It may be premature (and certainly would be presumptuous) to call ours a “knowledge society”; so far, we have only a knowledge economy.

But our society is surely “post-capitalist.”

Capitalism, in one form or another, has occurred and reoccurred many times throughout the ages, in the East as well as in the West.

And there have been numerous earlier periods of rapid technical invention and innovation—again in the East as well as the West—many of them producing technical changes fully as radical as any in the late eighteenth or early nineteenth centuries.

What is unprecedented and unique about the developments of the last two hundred fifty years is their speed and scope.

Instead of being one element in society, as all earlier capitalism had been, Capitalism—with a capital C—became society.

Instead of being confined, as always before, to a narrow locality, Capitalism—again with a capital C—took over all of Western and Northern Europe in a mere one hundred years, from 1750 to 1850.

Then, within another fifty years, it took over the entire inhabited world.

All earlier capitalism had been confined to small, narrow groups in society.

Nobles, landowners, the military, peasants, professionals, craftsmen, even laborers, were almost untouched by it.

Capitalism with a capital C soon permeated and transformed all groups in society wherever it spread.
From earliest times in the Old World, new tools, new processes, new materials, new crops, new techniques—what we now call “technology”—diffused swiftly.

Few modern inventions, for instance, spread as fast as a thirteenth-century one: eyeglasses.

Derived from the optical experiments of an English Franciscan friar, Roger Bacon (d.1292 or 1294), around 1270, reading glasses for the elderly were in use at the papal court of Avignon by 1290, at the Sultan’s court in Cairo by 1300, and at the court of the Mongol emperor of China no later than 1310.

Only the sewing machine and the telephone, fastest-spreading of all nineteenth-century inventions, moved as swiftly.

But earlier technological change almost without exception remained confined to one craft or one application.

It took another two hundred years—until the early 1500s—before Bacon’s invention had its second application: eyeglasses to correct nearsightedness.

The potter’s wheel was in full use in the Mediterranean by 1500 B.C.; pots for cooking, and for storing water and food, were available in every household.

Yet the principle underlying the potter’s wheel was not applied until A.D. 1000 to women’s work: spinning.

Similarly, the redesign of the windmill around the year 800, which converted it from the toy it had been in antiquity into a true machine (and a fully “automated” one at that), was not applied to ships for more than three hundred years, after 1100.

Until then, ships used oars; if wind was used at all to propel them, it was as an auxiliary power, and then only if it blew in the right direction.

The sail that drives a ship works exactly the same way as the sail that drives the windmill, and the need for a sail that would enable a ship to sail cross-wind and against the wind had been known for a long time.

The windmill was redesigned in Northern France or in the Low Countries, both regions thoroughly familiar with ships and navigation.

Yet it did not occur to anyone for several hundred years to apply something invented to pump water and to grind corn—for use on land—to use offshore.

The inventions of the Industrial Revolution, however, were immediately applied across the board, and across all conceivable crafts and industries.

They were immediately seen as technology.

James Watt’s (1736-1819) redesign of the steam engine between 1765 and 1776 made it into a cost-effective provider of power.

Watt himself throughout his own productive life focused on one use only: to pump water out of a mine—the use for which the steam engine had first been designed by Thomas Newcomen in the early years of the eighteenth century.

But one of England’s leading iron-masters immediately saw that the redesigned steam engine could also be used to blow air into a blast furnace and bid for the second engine Watt had built.

And Watt’s partner, Matthew Boulton (1728-1809), right away promoted the steam engine as a provider of power for all kinds of industrial processes, especially the largest of all manufacturing industries, textiles.
Thirty-five years later an American, Robert Fulton (1765-1815), floated the first steamship on New York’s Hudson River.

Another twenty years later the steam engine was put on wheels and the locomotive was born.

And by 1840—or at the very latest 1850—the steam engine had transformed every single manufacturing process from glassmaking to printing.

It had transformed long-distance transportation on land and sea, and it was beginning to transform farming.

By then, it had penetrated almost the entire world—Tibet, Nepal, and the interior of tropical Africa being the sole exceptions.

The nineteenth century believed—and most people still believe—that the Industrial Revolution was the first time a change in the “mode of production” (to use Karl Marx’s term) changed social structure and created new classes, the capitalist and the proletarian.

But this belief, too, is invalid.

Between 700 and 1100 A.D., two brand-new classes were created in Europe by technological change: those of the feudal knight and the urban craftsman.

The knight was created by the invention of the stirrup—an invention that arose in Central Asia around the year 700; the craftsman by the redesign of water wheel and windmill into true machines which, for the first time, used inanimate forces (water and wind) as motive power rather than human muscle.

The stirrup made it possible to fight on horseback; without it, a rider wielding lance, sword, or heavy bow would immediately have been thrown off his horse by the force of Newton’s Second Law: “To every action there is an equal and opposite reaction.”

For several hundred years, the knight remained an invincible “fighting machine.”

But this machine had to be supported by a “military-agricultural complex”—something quite new in history.

Germans until this century called it a Rittergut, a knight’s estate, endowed with legal status and economic and political privileges, and containing at least fifty peasant families or some two hundred people to produce the food needed to support the fighting machine: the knight, his squire, his three horses, and his twelve to fifteen grooms.

The stirrup, in other words, created feudalism.

The craftsman of antiquity had been a slave.

The craftsman of the first “machine age,” the craftsman of Europe’s Middle Ages, became the urban ruling class, the “burgher,” who then created Europe’s unique city, and both the Gothic and the Renaissance styles that followed.

The technical innovations—stirrup, water wheel, and windmill—traveled throughout the entire Old World, and fast.

But the classes of the earlier industrial revolution remained European phenomena on the whole.

Only in Japan, around 1100 A.D., did proud and independent craftsmen evolve, who enjoyed high esteem and, until 1600, considerable power.
But while the Japanese adopted the stirrup for riding, they continued to fight on foot.

The rulers in rural Japan were the commanders of foot soldiers – the daimyo. They levied taxes on the peasantry but had no feudal estates.

In China, in India, in the world of Islam, the new technologies had no social impact whatever.

Craftsmen in China remained serfs without social status.

The military did not become landowners but remained, as in Europe’s antiquity, professional mercenaries.

Even in Europe, the social changes generated by this early industrial revolution took almost four hundred years to take full effect. ¶¶¶

By contrast, the social transformation of society brought about by Capitalism and Industrial Revolution took less than a hundred years to become fully effective in Western Europe.

In 1750, capitalists and proletarians were still marginal groups; in fact, proletarians in the nineteenth-century meaning of the term, that is, factory workers, hardly existed at all.

By 1850, capitalists and proletarians were the dynamic classes of Western Europe, and were on the offensive.

They rapidly became the dominant classes wherever capitalism and modern technology penetrated.

In Japan, the transformation took less than thirty years, from the Meiji Restoration in 1867 to the war with China in 1894.

It took not much longer in Shanghai and Hong Kong, Calcutta and Bombay, or in the tsars’ Russia. ¶¶¶

Capitalism and the Industrial Revolution – because of their speed and their scope – created a world civilization. *

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¹ The best discussion of capitalism as a recurrent and fairly frequent phenomenon can be found in two works by the great French economic historian Fernand Braudel:


The best discussions of earlier “industrial revolutions” are Medieval Technology and Social Change, by Lynn White, Jr. (Oxford University Press, 1962);

The Medieval Machine: The Industrial Revolution of the Middle Ages, by Jean Gimpel (first published in France in 1975; English translation, New York: Holt, Rinehart & Winston, 1976); and

the monumental Science and Civilization in China by the British biochemist, orientalist, and historian Joseph Needham (Cambridge University Press), publication of which began in 1954 with half of the planned twenty-five parts yet to appear.

What Needham has published so far has already completely changed our
knowledge of early technology.

For earlier “industrial revolutions” see also my Technology, Management and Society (1973), especially Chapters 3, 7, and 11.

The best history of this development is Prometheus Unbound, by the Harvard historian David S. Landes (Cambridge University Press, 1969).

The New Meaning Of Knowledge

Unlike those “terrible simplifiers,” the nineteenth-century ideologues such as Hegel and Marx, we now know that major historical events rarely have just one cause and just one explanation.

They typically result from the convergence of a good many separate and independent developments. 

The Management Revolution

When I decided in 1926 not to go to college but to go to work after finishing secondary school, my father was quite distressed; ours had long been a family of lawyers and doctors.

But he did not call me a “dropout.”

He did not try to change my mind.

And he did not prophesy that I would never amount to anything.

I was a responsible adult wanting to work as an adult.

Some thirty years later, when my son reached age eighteen, I practically forced him to go to college.

Like his father, he wanted to be an adult among adults.

Like his father, he felt that in twelve years of sitting on a school bench he had learned little, and that his chances of learning more by spending another four years on a school bench were not particularly great.

Like his father at that age, he was action-focused, not learning-focused.

And yet by 1958, thirty-two years after I had moved from high school graduate to trainee in an export firm, a college degree had become a necessity.

It had become the passport to careers.

Not to go to college in 1958 was “dropping out” for an American boy who had grown up in a well-to-do family and done well in school.

My father did not have the slightest difficulty in finding a trainee job for me in a reputable merchant house.

Thirty years later, such firms would not have accepted a high school graduate as a trainee; they would all have said, “Go to college for four years—and then you probably should go on to graduate school.”

In my father’s generation (he was born in 1876), going to college was for the sons of the wealthy and a very small number of poor but exceptionally brilliant youngsters (such as he had been).

Of all the American business successes of the nineteenth century, only one went to college: J. P. Morgan went to Göttingen to study mathematics, but
Few of the others even attended high school, let alone graduated from it.*

By my time, going to college was already desirable; it gave one social status.

But it was by no means necessary nor much help in one’s life and career.

When I did the first study of a major business corporation, General Motors†‡, the public relations department at the company tried very hard to conceal the fact that a good many of their top executives had gone to college.

The proper thing then was to start as a machinist and work one’s way up.††‡‡

As late as 1950 or 1960, the quickest route to a middle-class income—in the United States, in Great Britain, in Germany (though no longer in Japan)—was not to go to college; it was to go to work at age sixteen in one of the unionized mass production industries.

There one could earn a middle-class income after a few months—the result of the productivity explosion.

Today these opportunities are practically gone.

Now there is practically no access to a middle-class income without a formal degree which certifies to the acquisition of knowledge that can only be obtained systematically and in a school.¶¶¶

The change in the meaning of knowledge that began two hundred fifty years ago has transformed society and economy.

Formal knowledge is seen as both the key personal and the key economic resource.

In fact, knowledge is the only meaningful resource today.

The traditional “factors of production”—land (i.e., natural resources), labor, and capital—have not disappeared, but they have become secondary.

They can be obtained and obtained easily, provided there is knowledge.

And knowledge in this new sense means knowledge as a utility, knowledge as the means to obtain social and economic results.¶¶¶

These developments, whether desirable or not, are responses to an irreversible change: knowledge is now being applied to knowledge.

This is the third and perhaps the ultimate step in the transformation of knowledge.

Suppling knowledge to find out how existing knowledge can best be applied to produce results is, in effect, what we mean by management.

But knowledge is now also being applied systematically and purposefully to define what new knowledge is needed, whether it is feasible, and what has to be done to make knowledge effective.

It is being applied, in other words, to systematic innovation. *¶¶¶

This third change in the dynamics of knowledge can be called the “Management Revolution.”

Like its two predecessors—knowledge applied to tools, processes, and products, and knowledge applied to human work—the Management Revolution has swept the earth.

It took a hundred years, from the middle of the eighteenth century to the
middle of the nineteenth century, for the Industrial Revolution to become
dominant and worldwide.

It took some seventy years, from 1880 to the end of World War II, for the
Productivity Revolution to become dominant and world-wide.

It has taken less than fifty years—from 1945 to 1990—for the Management
Revolution to become dominant and worldwide.

Most people when they hear the word “management” still hear “business
management.”

Management did indeed first emerge in its present form in large-scale
business organizations.

When I began to work on management some fifty years ago, I too
concentrated on business management.

But we soon learned that management is needed in all modern
organizations.

In fact, we soon learned that it is needed even more in organizations that are
not businesses, whether not-for-profit but non-governmental organizations
(what in this book I propose we call the “social sector”) or government
agencies.

These organizations need management the most precisely because they lack
the discipline of the “bottom line” under which business operates.

That management is not confined to business was recognized first in the
United States.

But it is now becoming accepted in every developed country.

We now know that management is a generic function of all organizations,
whatever their specific mission.

It is the generic organ of the knowledge society.

Management has been around for a very long time.

I am often asked whom I consider the best or the greatest executive.

My answer is always: “The man who conceived, designed, and built the first
Egyptian Pyramid more than four thousand years ago—and it still stands.”

But management as a specific kind of work was not seen until after World
War I—and then by just a handful of people.

Management as a discipline only emerged after World War II.

As late as 1950, when the World Bank began to lend money for economic
development, the word “management” was not even in its vocabulary.

In fact, while management was invented thousands of years ago, it was not
discovered until after World War II.

One reason for its discovery was the experience of World War II itself, and
especially the performance of American industry.

But perhaps equally important to the general acceptance of management
has been the performance of Japan since 1950.

Japan was not an “underdeveloped” country after World War II but its
industry and economy were almost totally destroyed, and it had practically
no domestic technology.

The nation’s main resource was its willingness to adopt and adapt the
management which the Americans had developed during World War II (and especially training).

Within twenty years—from the 1950s, when the American occupation of Japan ended, to the 1970s—Japan became the world’s second economic power, and a leader in technology.

When the Korean War ended in the early 1950s, South Korea was left even more devastated than Japan had been seven years earlier.

And it had never been anything but a backward country, especially as the Japanese systematically suppressed Korean enterprise and higher education during their thirty-five years of occupation.

But by using the colleges and universities of the United States to educate their able young people, and by importing and applying the concepts of management, Korea became a highly developed country within twenty-five years.

With this powerful expansion of management came a growing understanding of what management really means.

When I first began to study management, during and immediately after World War II, a manager was defined as “someone who is responsible for the work of subordinates.”

A manager in other words was a “boss,” and management was rank and power.

This is probably still the definition a good many people have in mind when they speak of “managers” and “management.”

But by the early 1950s, the definition of a manager had already changed to one who “is responsible for the performance of people.”

Today, we know that that is also too narrow a definition.

The right definition of a manager is one who “is responsible for the application and performance of knowledge.”

This change means that we now see knowledge as the essential resource.

Land, labor, and capital are important chiefly as restraints.

Without them, even knowledge cannot produce; with out them, even management cannot perform.

But where there is effective management, that is, application of knowledge to knowledge, we can always obtain the other resources.

That knowledge has become the resource, rather than a resource, is what makes our society “post-capitalist.”

This fact changes—fundamentally—the structure of society.

It creates new social and economic dynamics.

It creates new politics.

¹ (In the novels of Edith Wharton, the chronicler of American society around 1910 and 1920, the sons of the old and rich New York families do go to Harvard and to Harvard Law School, but practically none of them then
practices law. Higher education was considered a luxury, an ornament, and a pleasant way to spend one’s early adulthood.)

²‡ Published in Concept of the Corporation (1946))

²‡ The story is told in the chapter “Alfred P. Sloan” in Adventures of a Bystander (1980, reissued 1991)

³ For more on this, see my Innovation and Entrepreneurship (1986)

† † In The Practice of Management, which first established management as a discipline in 1954, most of the discussion is of business management, and so are most examples

From Knowledge To Knowledges

Underlying all three phases in the shift to knowledge—the Industrial Revolution, the Productivity Revolution, and the Management Revolution—is a fundamental change in the meaning of knowledge.

We have moved from knowledge in the singular to knowledges in the plural.

Traditional knowledge was general.

What we now consider knowledge is of necessity highly specialized.

We never before spoke of a “man (or woman) of knowledge”; we spoke of an “educated person.”

Educated people were generalists.

They knew enough to talk or write about a good many things, enough to understand a good many things.

But they did not know enough to do any one thing.

As an old saying has it: You would want an educated person as a guest at your dinner table, but you would not want him or her alone with you on a desert island, where you need somebody who knows how to do things.

But in today’s university the traditional “educated people” are not considered “educated” at all.

They are looked down on as dilettantes. ¶¶¶

The Connecticut Yankee at King Arthur’s Court, the hero of the 1889 book by Mark Twain, was not an educated person.

He surely knew neither Latin nor Greek, had probably never read Shakespeare, and did not even know the Bible well.

But he knew how to do everything mechanical, up to and including generating electricity and building telephones. ¶¶¶

The purpose of knowledge for Socrates, as said earlier, was self-knowledge and self-development; results were internal.

For his antagonist, Protagoras, the result was the ability to know what to say and to say it well.

It was “image,” to use a contemporary term.

For more than two thousand years, Protagoras’s concept of knowledge dominated Western learning and defined knowledge.

The medieval trivium, the educational system that up to this day underlies what we call a “liberal education,” consisted of grammar, logic, and rhetoric–
the tools needed to decide what to say and how to say it.

They are not tools for deciding what to do and how to do it.

The Zen concept of knowledge and the Confucian concept of knowledge—the two concepts that dominated Eastern learning and Eastern culture for thousands of years—were similar.

The first focused on self-knowledge; the second—like the medieval trivium—on the Chinese equivalents of grammar, logic, and rhetoric. ¶¶¶

The knowledge we now consider knowledge proves itself in action.

What we now mean by knowledge is information effective in action, information focused on results.

These results are seen outside the person—in society and economy, or in the advancement of knowledge itself. ¶¶¶

To accomplish anything, this knowledge has to be highly specialized.

This was the reason why the tradition—beginning with the ancients but still persisting in what we call “liberal education”—relegated it to the status of a technè, or craft.

It could neither be learned nor taught; nor did it imply any general principle whatever.

It was specific and specialized-experience rather than learning, training rather than schooling.

But today we do not speak of these specialized knowledges as “crafts”; we speak of “disciplines.”

This is as great a change in intellectual history as any ever recorded. ¶¶¶

A discipline converts a “craft” into a methodology—such as engineering, the scientific method, the quantitative method, or the physician’s differential diagnosis.

Each of these methodologies converts ad hoc experience into system.

Each converts anecdote into information.

Each converts skill into something that can be taught and learned. «§§§»

The shift from knowledge to knowledges has given knowledge the power to create a new society.

But this society has to be structured on the basis of knowledge as something specialized, and of knowledge people as specialists.

This is what gives them their power.

But it also raises basic questions—of values, of vision, of beliefs, of all the things that hold society together and give meaning to our lives.

As the last chapter of this book will discuss, it also raises a big—and a new-question: what constitutes the educated person in the society of knowledges?
The search for knowledge, as well as the teaching thereof, has traditionally been dissociated from application.

Both have been organized by subject, that is, according to what appeared to be the logic of knowledge itself.

The faculties and departments of the university, its degrees, its specializations, indeed the entire organization of higher learning, have been subject-focused.

They have been, to use the language of the experts on organization, based upon “product,” rather than on “market” or “end use.”

Now we are increasingly organizing knowledge and the search for it around areas of application rather than around the subject areas of disciplines.

Interdisciplinary work has grown everywhere. ¶¶

This is a symptom of the shift in the meaning of knowledge from an end in itself to a resource, that is, a means to some result.

Knowledge as the central energy of a modern society exists altogether in application and when it is put to work.

Work, however, cannot be defined in terms of the disciplines.

End results are interdisciplinary of necessity.

The Daily Drucker
Technologies and End-Users Are Fixed and Given

Four major assumptions, as said at the beginning of this chapter, have been underlying the practice of management all along—in fact, for much longer than there has been a discipline of management.

The assumptions about technology and end-users underlie, to a very large extent, the rise of modern business and of the modern economy altogether.

They go back to the very early days of the Industrial Revolution.

When the textile industry first developed, out of what had been cottage industries, it was assumed—and with complete validity—that the textile industry had its own unique technology.

The same was true in respect to coal mining and any of the other industries that arose in the late eighteenth century and the first half of the nineteenth century.

The first one to understand this and to base a major enterprise on it was also one of the first men to develop what we would today call a modern business, the German Werner Siemens (1816-1892).

It led him, in 1869, to hire the first university trained scientist to start a modern research lab—devoted exclusively to what we would now call electronics, and based on a clear understanding that electronics (in those days called “low-voltage”) was distinct and separate from all other industries and had its distinct and separate technology.

Out of the insight that technologies and their end-uses are distinct, grew not only Siemens’s own company with its own research lab, but also the German chemical industry, which assumed worldwide leadership because it based itself the assumption that chemistry—and especially organic chemistry—had its own unique technology.

Out of it then grew the other major leading companies the world over—the American electrical and chemical companies, the automobile companies, the telephone companies, and so on.

Out of this insight also grew more of what may well be the most successful invention of the nineteenth century, the research laboratory—the last one, almost a century after Siemens’s, the 1950 lab of IBM.

Research Management

At around the same time the research labs of the major pharmaceutical companies emerged as a worldwide industry after World War II.

By now, though, the assumptions underlying these successes have become
The best example of this is in the pharmaceutical industry, which increasingly has come to depend on technologies that are fundamentally different from the technologies on which the pharmaceutical research lab is based—generics, microbiology, molecular biology, medical electronics, and so on.

In the nineteenth century and throughout the first half of the twentieth century, it could be taken for granted that technologies outside one’s own industry had no, or at least only minimal, impact on it.

Now the assumption to start with is that the technologies that are likely to have the greatest impact on a company and an industry are technologies outside its own field.

The original assumption was, of course, that one’s own research lab would and could produce everything the company—or the company’s industry—needed.

And, in turn, the assumption was that everything that this research lab produced would be used in and by the industry that it served.

Today’s technologies, unlike the nineteenth-century technologies, no longer run in parallel.

They constantly crisscross, as discussed briefly in chapter 6.

Technology that people in their given industries have barely heard of (just as the people in the pharmaceutical industry had never heard of genetics, let alone medical electronics) revolutionizes those industries.

Such outside technologies force industries to learn, to acquire, to adapt, to change their very mindset, not to mention their technical knowledge.

A second assumption that was equally important to the rise of nineteenth and twentieth-century industry and companies was:

End-uses are fixed and given.

For example, for the end-use of putting beer into containers, there is now extreme competition among various suppliers of containers.

But at one time all of them were glass companies, and there was only one way of putting beer into containers—put it in a glass bottle.

Fixed end-use was accepted as obvious, not only by business, industry, and the consumer, but by governments as well.

The American regulation of business rests on the assumptions that to every industry there pertains a unique technology and that to every end-use there pertains a specific and unique product or service.

These are the assumptions on which antitrust was based.

And to this day antitrust law concerns itself with the domination of the
market in glass bottles and pays little attention to the fact that beer increasingly is put not into glass bottles but into cans or plastic bottles. But since World War II end-uses are no longer uniquely tied to a certain product or service.

The plastics, of course, were the first major exception to the rule. But by now it is clear that it is not just one material moving in on what was considered the “turf” of another one. Increasingly, the same want is being satisfied by very different means.

It is the want that is unique, and not the means to satisfy it. As late as the beginning of World War II, dissemination of news was basically the monopoly of the printed newspaper—an eighteenth-century invention that saw its biggest growth in the early years of the twentieth century.

Now there are many competing deliverers of news:

the radio, the television, still the printed newspaper, increasingly the same newspaper delivered online through the Internet, separate news organizations that operate only electronically—(as is increasingly the case with economic and business news), and quite a few additional ones.

And then there is the new “basic resource” information. It differs radically from all other commodities in that it does not stand under the scarcity theorem. On the contrary, it stands under an abundance theorem.

If I sell a thing—for example, a book—I no longer have the book. If I impart information, I still have it. And in fact, information becomes more valuable the more people have it.

What this means for economics is well beyond the scope of this chapter, though it is clear that it will force us to radically revise basic economic theory.

But it also means a good deal for management. Increasingly, basic assumptions will have to be changed.

Information does not pertain exclusively to any industry or to any business. Information also does not have any one end-use, nor does any end-use require or depend upon one particular kind of information. Therefore, management now has to start out with the assumption that there is no one technology that pertains to an industry and that, on the contrary, all technologies are capable—and indeed likely—to be of major importance to any industry and to have impact on any industry.

Similarly, management has to start with the assumption that there is no given end-use for any product or service and that, conversely, no end-use is going to be linked solely to any one product or service.

One implication of this is that increasingly the noncustomers of an enterprise whether a business, a university, a church, a hospital—ar e as important as the customers, if not more important.

Even the biggest enterprise (other than a government monopoly) has many more noncustomers than it has customers.
There are very few institutions that supply as large a percentage of a market as 30 percent.

There are, therefore, few institutions where the noncustomers do not amount to at least 70 percent of the potential market.

And yet very few institutions know anything about the noncustomers—very few of them even know that they exist, let alone know who they are.

And even fewer know why they are not customers.

Yet, it is with the noncustomers that changes always start.

The starting point has to be what customers consider value.

The starting point has to be the assumption—an assumption amply proven by all our experience—that the customer never buys what the supplier sells.

What is value to the customer is always something quite different from what is value or quality to the supplier.

This applies as much to a business as to a university or to a hospital.

Management, in other words, will increasingly have to be based on the assumption that neither technology nor end-use is a foundation for management policy.

They are limitations.

The foundations have to be customer values and customer decisions on the distribution of their disposable income.

It is with those that management policy and management strategy increasingly will have to start.
What accounts for the decline in the number of major corporate research labs?

The company-owned research laboratory was one of the nineteenth century’s most successful inventions. Now many research directors, as well as high-tech industrialists, tend to believe that such labs are becoming obsolete.

Why?

Technologies crisscross industries and travel incredibly fast, making few of them unique anymore. And increasingly, the knowledge needed in a given industry comes out of some totally different technology with which, very often, the people in the industry are quite unfamiliar.

As a result the big research labs of the past are becoming obsolete.

The research laboratory of the big telephone companies, the famous Bell Laboratories of the U.S., was for many decades the source of all major innovations in the telephone industry.

But no one in that industry worked on fiberglass cables or had ever heard of them.

They were developed by a glass company, Corning. Yet they have revolutionized communications worldwide.

*The Daily Drucker*
New knowledge is not the most reliable or most predictable source of successful innovations.

**Purposeful innovation**

For all the visibility, glamour, and importance of science-based innovation, it is actually the least reliable and least predictable one.

**Knowledge-based innovation** has the longest lead-time of any innovation.

First, there is a long time span between the emergence of new knowledge, and it’s becoming applicable to technology. And then there is another long period before the new technology turns into products, processes, or services in the marketplace.

The introduction of innovation creates excitement and attracts a host of competitors, meaning that innovators have to be right the first time.

They are unlikely to get a second chance.

Here, even successful innovators almost immediately have far more company than they want and must prepare themselves to weather the storm that lies ahead.

For example, Apple Computer invented the personal computer. IBM was able to wrest market leadership from Apple through creative imitation.

Apple failed to maintain its leadership position and became a niche player because it failed to predict and respond to the competition it would face.

In the theory and practice of innovation and entrepreneurship, the bright-idea innovation belongs in the appendix.

But it should be appreciated and rewarded.

It represents qualities that society needs: initiative, ambition, and ingenuity.

The Daily Drucker

How do you make these ideas operational?

About humor, hindsight and insight, creativity and lateral thinking, lateral thinking as process, judgment and provocation, the word "Po", the stepping stone method, the escape method, the random stimulation method, general use of lateral thinking, the logic of lateral thinking → [here](#)