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PETER F. DRUCKER

INNOVATION  
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## Purposeful Innovation and the Seven Sources for Innovative Opportunity

Entrepreneurs innovate. Innovation is the specific instrument of entrepreneurship. It is the act that endows resources with a new capacity to create wealth. Innovation, indeed, creates a resource. There is no such thing as a "resource" until man finds a use for something in nature and thus endows it with economic value. Until then, every plant is a weed and every mineral just another rock. Not much more than a century ago, neither mineral oil seeping out of the ground nor bauxite, the ore of aluminum, were resources. They were nuisances; both render the soil infertile. The penicillin mold was a pest, not a resource. Bacteriologists went to great lengths to protect their bacterial cultures against contamination by it. Then in the 1920s, a London doctor, Alexander Fleming, realized that this "pest" was exactly the bacterial killer bacteriologists had been looking for—and the penicillin mold became a valuable resource.

The same holds just as true in the social and economic spheres. There is no greater resource in an economy than "purchasing power." But purchasing power is the creation of the innovating entrepreneur.

The American farmer had virtually no purchasing power in the early nineteenth century; he therefore could not buy farm machinery. There were dozens of harvesting machines on the market, but however much he might have wanted them, the farmer could not pay for them. Then one of the many harvesting-machine inventors, Cyrus McCormick, invented installment buying. This enabled the farmer to pay for a harvesting machine out of his future earnings rather than out of past savings—and suddenly the farmer had "purchasing power" to buy farm equipment.

Equally, whatever changes the wealth-producing potential of already existing resources constitutes innovation.

There was not much new technology involved in the idea of moving a truck body off its wheels and onto a cargo vessel. This "innovation," the container, did not grow out of technology at all but out of a new perception of the "cargo vessel" as a materials-handling device rather than a "ship," which meant that what really mattered was to make the time in port as short as possible. But this humdrum innovation roughly quadrupled the productivity of the ocean-going freighter and probably saved shipping. Without it, the tremendous expansion of world trade in the last forty years—the fastest growth in any major economic activity ever recorded—could not possibly have taken place.

What really made universal schooling possible—more so than the popular commitment to the value of education, the systematic training of teachers in schools of education, or pedagogic theory—was that lowly innovation, the textbook. (The textbook was probably the invention of the great Czech educational reformer Johann Amos Comenius, who designed and used the first Latin primers in the mid-seventeenth century.) Without the textbook, even a very good teacher cannot teach more than one or two children at a time; with it, even a pretty poor teacher can get a little learning into the heads of thirty or thirty-five students.

Innovation, as these examples show, does not have to be technical, does not indeed have to be a "thing" altogether. Few technical innovations can compete in terms of impact with such social innovations as the newspaper or insurance. Installment buying literally transforms economies. Wherever introduced, it changes the economy from supply-driven to demand-driven, regardless almost of the productive level of the economy (which explains why installment buying is the first practice that any Marxist government coming to power immediately suppresses: as the Communists did in Czechoslovakia in 1948, and again in Cuba in 1959). The hospital, in its modern form a social innovation of the Enlightenment of the eighteenth century, has had greater impact on health care than many advances in medicine. Management, that is, the "useful knowledge" that enables man for the first time to render productive people of different skills and knowledge working together in an "organization," is an innovation of this century. It has converted modern society into something brand new, something, by the way, for

which we have neither political nor social theory: a society of organizations.

Books on economic history mention August Borsig as the first man to build steam locomotives in Germany. But surely far more important was his innovation—against strenuous opposition from craft guilds, teachers, and government bureaucrats—of what to this day is the German system of factory organization and the foundation of Germany's industrial strength. It was Borsig who devised the idea of the *Meister* (Master), the highly skilled and highly respected senior worker who runs the shop with considerable autonomy; and the *Lehrling System* (apprenticeship system), which combines practical training (*Lehre*) on the job with schooling (*Ausbildung*) in the classroom. And the twin inventions of modern government by Machiavelli in *The Prince* (1513) and of the modern national state by his early follower, Jean Bodin, sixty years later, have surely had more lasting impacts than most technologies.

One of the most interesting examples of social innovation and its importance can be seen in modern Japan.

From the time she opened her doors to the modern world in 1867, Japan has been consistently underrated by westerners, despite her successful defeats of China and then Russia in 1894 and 1905, respectively; despite Pearl Harbor; and despite her sudden emergence as an economic superpower and the toughest competitor in the world market of the 1970s and 1980s. A major reason, perhaps the major one, is the prevailing belief that innovation has to do with things and is based on science or technology. And the Japanese, so the common belief has held (in Japan as well as in the West, by the way), are not innovators but imitators. For the Japanese have not, by and large, produced outstanding technical or scientific innovations. Their success is based on social innovation.

When the Japanese, in the Meiji Restoration of 1867, most reluctantly opened their country to the world, it was to avoid the fates of India and nineteenth-century China, both of which were conquered, colonized, and "westernized" by the West. The basic aim, in true Judo fashion, was to use the weapons of the West to hold the West at bay; and to remain Japanese.

This meant that social innovation was far more critical than steam locomotives or the telegraph. And social innovation, in terms of the development of such institutions as schools and universities, a civil

service, banks and labor relations, was far more difficult to achieve than building locomotives and telegraphs. A locomotive that will pull a train from London to Liverpool will equally, without adaptation or change, pull a train from Tokyo to Osaka. But the social institutions had to be at once quintessentially "Japanese" and yet "modern." They had to be run by Japanese and yet serve an economy that was "Western" and highly technical. Technology can be imported at low cost and with a minimum of cultural risk. Institutions, by contrast, need cultural roots to grow and to prosper. The Japanese made a deliberate decision a hundred years ago to concentrate their resources on social innovations, and to imitate, import, and adapt technical innovations—with startling success. Indeed, this policy may still be the right one for them. For, as will be discussed in Chapter 17, what is sometimes half-facetiously called creative imitation is a perfectly respectable and often very successful entrepreneurial strategy.

Even if the Japanese now have to move beyond imitating, importing, and adapting other people's technology and learn to undertake genuine technical innovation of their own, it might be prudent not to underrate them. Scientific research is in itself a fairly recent "social innovation." And the Japanese, whenever they have had to do so in the past, have always shown tremendous capacity for such innovation. Above all, they have shown a superior grasp of entrepreneurial strategies.

"Innovation," then, is an economic or social rather than a technical term. It can be defined the way J. B. Say defined entrepreneurship, as changing the yield of resources. Or, as a modern economist would tend to do, it can be defined in demand terms rather than in supply terms, that is, as changing the value and satisfaction obtained from resources by the consumer.

Which of the two is more applicable depends, I would argue, on the specific case rather than on the theoretical model. The shift from the integrated steel mill to the "mini-mill," which starts with steel scrap rather than iron ore and ends with one final product (e.g., beams and rods, rather than raw steel that then has to be fabricated), is best described and analyzed in supply terms. The end product, the end uses, and the customers are the same, though the costs are substantially lower. And the same supply definition probably fits the container. But the audiocassette or the videocassette, though equally "technical," if not more so, are better described or analyzed in terms of consumer

values and consumer satisfactions, as are such social innovations as the news magazines developed by Henry Luce of Time-Life-Fortune in the 1920s, or the money-market fund of the late 1970s and early 1980s.

We cannot yet develop a theory of innovation. But we already know enough to say when, where, and how one looks systematically for innovative opportunities, and how one judges the chances for their success or the risks of their failure. We know enough to develop, though still only in outline form, the practice of innovation.

It has become almost a cliché for historians of technology that one of the great achievements of the nineteenth century was the "invention of invention." Before 1880 or so, invention was mysterious; early nineteenth-century books talk incessantly of the "flash of genius." The inventor himself was a half-romantic, half-ridiculous figure, tinkering away in a lonely garret. By 1914, the time World War I broke out, "invention" had become "research," a systematic, purposeful activity, which is planned and organized with high predictability both of the results aimed at and likely to be achieved.

Something similar now has to be done with respect to innovation. Entrepreneurs will have to learn to *practice systematic innovation*.

Successful entrepreneurs do not wait until "the Muse kisses them" and gives them a "bright idea"; they go to work. Altogether, they do not look for the "biggie," the innovation that will "revolutionize the industry," create a "billion-dollar business," or "make one rich overnight." Those entrepreneurs who start out with the idea that they'll make it big—and in a hurry—can be guaranteed failure. They are almost bound to do the wrong things. An innovation that looks very big may turn out to be nothing but technical virtuosity; and innovations with modest intellectual pretensions, a McDonald's, for instance, may turn into gigantic, highly profitable businesses. The same applies to nonbusiness, public-service innovations.

Successful entrepreneurs, whatever their individual motivation—be it money, power, curiosity, or the desire for fame and recognition—try to create value and to make a contribution. Still, successful entrepreneurs aim high. They are not content simply to improve on what already exists, or to modify it. They try to create new and different values and new and different satisfactions, to convert a "material" into a "resource," or to combine existing resources in a new and more productive configuration.

And it is change that always provides the opportunity for the new

and different. *Systematic innovation therefore consists in the purposeful and organized search for changes, and in the systematic analysis of the opportunities such changes might offer for economic or social innovation.*

As a rule, these are changes that have already occurred or are under way. The overwhelming majority of successful innovations *exploit* change. To be sure, there are innovations that in themselves constitute a major change; some of the major technical innovations, such as the Wright Brothers' airplane, are examples. But these are exceptions, and fairly uncommon ones. Most successful innovations are far more prosaic; they exploit change. And thus the discipline of innovation (and it is the knowledge base of entrepreneurship) is a diagnostic discipline: a systematic examination of the areas of change that typically offer entrepreneurial opportunities.

Specifically, systematic innovation means monitoring *seven sources* for innovative opportunity.

The first four sources lie within the enterprise, whether business or public-service institution, or within an industry or service sector. They are therefore visible primarily to people within that industry or service sector. They are basically symptoms. But they are highly reliable indicators of changes that have already happened or can be made to happen with little effort. These four source areas are:

- *The unexpected*—the unexpected success, the unexpected failure, the unexpected outside event;
- *The incongruity*—between reality as it actually is and reality as it is assumed to be or as it "ought to be";
- *Innovation based on process need;*
- *Changes in industry structure or market structure* that catch everyone unawares.

The second set of sources for innovative opportunity, a set of three, involves changes outside the enterprise or industry:

- *Demographics* (population changes);
- *Changes in perception, mood, and meaning;*
- *New knowledge*, both scientific and nonscientific.

The lines between these seven source areas of innovative opportunities are blurred, and there is considerable overlap between them. They can be likened to seven windows, each on a different side of the same

building. Each window shows some features that can also be seen from the window on either side of it. But the view from the center of each is distinct and different.

The seven sources require separate analysis, for each has its own distinct characteristic. No area is, however, inherently more important or more productive than the other. Major innovations are as likely to come out of an analysis of symptoms of change (such as the unexpected success of what was considered an insignificant change in product or pricing) as they are to come out of the massive application of new knowledge resulting from a great scientific breakthrough.

But the order in which these sources will be discussed is not arbitrary. They are listed in descending order of reliability and predictability. For, contrary to almost universal belief, new knowledge—and especially new scientific knowledge—is not the most reliable or most predictable source of successful innovations. For all the visibility, glamour, and importance of science-based innovation, it is actually the least reliable and least predictable one. Conversely, the mundane and unglamorous analysis of such symptoms of underlying changes as the unexpected success or the unexpected failure carry fairly low risk and uncertainty. And the innovations arising therefrom have, typically, the shortest lead time between the start of a venture and its measurable results, whether success or failure.

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## Source: The Unexpected

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### THE UNEXPECTED SUCCESS

No other area offers richer opportunities for successful innovation than the unexpected success. In no other area are innovative opportunities less risky and their pursuit less arduous. Yet the unexpected success is almost totally neglected; worse, managements tend actively to reject it.

Here is one example.

More than thirty years ago, I was told by the chairman of New York's largest department store, R. H. Macy, "We don't know how to stop the growth of appliance sales."

"Why do you want to stop them?" I asked, quite mystified. "Are you losing money on them?"

"On the contrary," the chairman said, "profit margins are better than on fashion goods; there are no returns, and practically no pilferage."

"Do the appliance customers keep away the fashion customers?" I asked.

"Oh, no," was the answer. "Where we used to sell appliances primarily to people who came in to buy fashions, we now sell fashions very often to people who come in to buy appliances. But," the chairman continued, "in this kind of store, it is normal and healthy for fashion to produce seventy percent of sales. Appliance sales have grown so fast that they now account for three-fifths. And that's abnormal. We've tried everything we know to make fashion grow to restore the normal ratio, but nothing works. The only thing left now is to push appliance sales down to where they should be."