

Manufacturing's most influential thinkers & doers: you know Jack Welch, but you may not know Taiichi Ohno. Both, however, made huge marks on manufacturing during the past three and a half decades. so, arguably, did Richard Nixon.

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Think about the people who have had the greatest impact on manufacturing during the past 35 years, the first 35 years of IndustryWeek's existence. It's much easier to come up with names of doers than of thinkers. Four years after he was succeeded by Jeffrey R. Immelt, General Electric Co.'s John F. "Jack" Welch Jr. is foremost among the doers. During his 20-year tenure as chairman and CEO, he promoted decision-focused "workouts" to solve problems, championed Six Sigma, periodically evaluated executive performance and sent the bottom 10% packing, and insisted that if a business wasn't No. 1 or No. 2 in its market, it be fixed, sold or closed.

However, during the past 35 years, manufacturing has had its share of seminal thinkers as well. Among the more familiar names is Harvard University's Michael Porter, who asserts the primacy of strategy in business success. Also at Harvard, there's Clayton Christensen whose notions of managing disruptive technological changes challenges some of Porter's ideas about the constancy of strategy. Less widely known but still powerful among the thinkers is Eliyahu M. **Goldratt**, an unconstrained ideaman whose **Theory of Constraints** helps manufacturers remove broken links from their value chains and improve performance and profits. Indeed, three-quarters of IW's Top 25 Best Plants in 2004 said they used **Goldratt's** theory as a tool to help them improve performance.

During the past 35 years, manufacturing also has had a distinguished group of people who have been both thinkers and doers. Former Intel Corp. CEO Andrew S. Grove, who famously asserted that only the paranoid survive, tops the roster. But close behind is Michael Dell, chairman of the eponymous computer firm. He crafted a new kind of supply chain and launched a revolutionary business model, an Internet-based approach to purchasing, mass customization and, at least until early 2005, remarkable after-sale service. "A classic example" of a new and innovative business model, judges Adrian Slywotzky, a vice president and member of the board of directors at Mercer Management Consulting Inc. in Boston.

At the same time, for many manufacturing executives, the late Peter Drucker was the one-person management benchmark for 35 years--and for many years before 1970. Drucker's basic message is that people are the most important asset of a manufacturing company, or of any other organization, and that management's primary job is to give people the freedom to perform.

W. Edwards Deming (statistical quality control) together with Joseph J. Juran (the "internal customer") and Armand W. Feigenbaum (Total Quality Control) have been among the most-recognized quality-process thinkers of the past 35 years, each with the remarkable distinction of having their ideas more widely accepted by companies in Japan before they were embraced by manufacturers in the U.S. "Trendsetters" is the word Anthony J. Mayo, executive director of Harvard Business School's Leadership Initiative uses to describe these three quality gurus.

The roster of the most influential continues with former U.S. Secretary of Labor and now Brandeis University professor Robert B. Reich. He argued the case for a national industrial policy for several years before he joined the Clinton cabinet in 1993. And lately, while many in manufacturing continue to pay only lip service to the subject, Reich has been advancing new thoughts on worker education and training. Focus not on specific job skills but on the kinds of knowledge and critical thinking the industries of the future will need, he urges.

Re-examining capitalism and leading a quest for purpose beyond economic success, former Royal Dutch/Shell executive and London Business School professor Charles Handy, a self-described social philosopher and reluctant capitalist, changed the ways we think about work with two books during past 10 years: the more philosophical "The Hungry Spirit" (1997, Broadway Books) and the more autobiographical "The Elephant and the Flea" (2002, Harvard Business School Press).

Tom Peters, co-author of the pioneering book "In Search of Excellence" (1982, Harper & Row); Peter M. Senge, an expert on organizational learning; Gary Hamel, an expert on strategy and innovation; and futurist Alvin Toffler made the first 10 on Accenture's 2003 list of the top 50 business thinkers. Michael Porter, Robert Reich and Peter Drucker did as well. And all belong on the list of people having the greatest impact on manufacturing during the past 35 years.

However, "the best manufacturing thinkers of the last several decades" are Taiichi Ohno and Shigeo Shingo, contends Mercer's Slywotzky. Ohno was a Toyota Motor Co. vice president and Shingo a consultant. In laying out the principles now often collected under the label "lean," they challenged the prevailing notion that manufacturing had to be done on a large scale with long runs and large inventories. They challenged the notion that quality control was something done at the end of the production line. And they challenged the notion that a production line keeps running no matter what. "What they introduced went 100% against the grain and the mindset of great manufacturers of that time, both inside Japan and outside Japan," Slywotzky stresses. The famed Toyota Production System, which emphasizes reducing waste and eliminating defects, is a product of their work. Its impact can be seen at Toyota, the "hundreds of Toyota suppliers" and "the hundreds of companies in the West that, with a 10- or 15-year lag, sometimes a 20-year lag, began to rethink and change their manufacturing," Slywotzky says.

Another groundbreaker is Ken Iverson, who in the 1970s at steelmaker Nucor challenged the then generally accepted notion that large-scale production was essential to survival and success. "He implemented a way of making steel that was a string of regional plants. [He showed] that you don't have to make 4 million tons a year to be profitable; you could make 200,000 tons a year and be even more profitable than the people that made 4 million tons," notes Slywotzky. "This was a real crack in the thinking."

Mercer's Slywotzky has cracked conventional thinking as well and that puts him on the roster of the most influential. His highly praised book "The Profit Zone" (1998, Times Books) contends that market share as a goal is dead and that in the pursuit of profits executives must base strategies on what consumers want.

Oracle chairman Larry Ellison, Microsoft Corp. chairman Bill Gates, Siebel Systems founder Tom Siebel and SAS Inc. CEO James Goodnight are four combination thinkers and doers that Harvard Business School's Mayo singles out for praise as knowledge workers who have provided "the tools that allow people to take leaps in manufacturing."

Finally, the word "leap" leads to Richard M. Nixon, 37th President of the United States and the person Rebecca A. Morgan believes has had the greatest impact on manufacturing during the past 35 years. With his historic opening to China in February 1972, Nixon helped bring China into the modern world and enabled China to move from a closed economy to "whatever you call the economy they have now," says Morgan, president of Fulcrum ConsultingWorks in Cleveland. "I certainly don't think [Nixon] intended for [China] to become a major manufacturing economy that took our jobs," she states. "But if he didn't, you really have to ask the question, Where did he think they were going to get the money to buy our stuff?."

Where Are All The Women?

Women are conspicuously absent from the roster of thinkers and doers who have had the greatest impact on manufacturing during the past 35 years. Why? Probably because women haven't been at the table for very long.

Rebecca A. Morgan, president of Fulcrum ConsultingWorks, Cleveland, has had her own business for 15 years. But for the previous 15 years she was a woman in manufacturing and, she states, "I was the only woman there." Only in the past 15 years have women started coming into manufacturing, "and then they had to work they way up," emphasizes Morgan. "We really haven't had that many years to make a major impact." However, speculates Morgan, 15 years from now women may be having a major impact on manufacturing. But they may not be American women."

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