



Reinventing the Business

by Stephen Blaney

Western Zirconium Company is a subsidiary of Westinghouse Electric Corporation. Its production process begins with a simple raw material — sand — and through a complex manufacturing process converts and fabricates it into zirconium tubing, sheets and coils used in commercial nuclear reactors. In 1988, WZ was plagued with late deliveries and excessive costs. The parent corporation recently attached it to the Westinghouse Commercial Nuclear Fuel Division, who had just applied for and was about to win the first Malcolm Baldrige National Quality Award.

To address the problem, WZ management brought in a team from the Westinghouse Productivity and Quality Center, now Performance Associates International. This team, supported by an enlightened General Manager, used management science principles to rethink the business, reengineer nearly all significant processes, reeducate and challenge the work force, and produce a dramatic turnaround in performance.

The first reengineering step was to simplify all ongoing processes, beginning in the factory where all profits ultimately originate. The simplification was accomplished by teaching the work force the Key Elements of Just in Time Manufacturing: pull system, multifunctional workers, level production, continuous flow, eliminate setup time, production quality control, machine uptime, and housekeeping and safety. Management made a unique pledge: no one would lose their job as a result of the reengineering effort.

Teams of workers mapped every key process and simplified them by cutting up to 50% of the process steps, eliminating Waste — non-value-adding steps. Their education proceeded in stages — an unusual “Learn-Do” mode that allowed them to use their learning’s to accomplish some process improvements before returning to the classroom for the next educational segment. By 1990, the factory’s cost structure was revolutionized and its on-time delivery record was near-perfect. Customers began recognizing the turnaround by giving increased orders to WZ. No one lost their job: as non-value-adding jobs became redundant, the incumbents were moved to other areas to continue the crusade against Waste.

The reengineering effort was carried on into “support” functions — purchasing, maintenance, human resources, and accounting. Processes were simplified, Waste was ruthlessly eliminated, and job incumbents shifted into other areas continually. For example:

- 40% of Purchase Orders were eliminated in favor of negotiated contracts with qualified suppliers. As a result, Purchasing people were freed up to spend time managing supplier relationships, rather than performing non value-adding transactions.
- Maintenance established a new vision in making the dramatic transition from reactive to preventive maintenance — and finally, to predictive maintenance. This transition reduced factory downtime from 40% to 4%!
- Inspection is currently making the transition to “quality at the source” and moving into auditing functions. As part of the “customer partnership” philosophy, they have identified and are eliminating some 11,000 product certifications formerly required.

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- Accounting shifted from its traditional functions to an embedded Activity Based Costing management approach. One result was streamlining the process of closing the books — from 10,000 transactions performed over a six-day period to 40 transactions performed in a single day.

Employee teams devised dozens of other significant time and money saving process improvements.

Among the processes that received additional attention from freed-up human resources was new product development — the division introduced new products that earned additional revenue and enhanced still more profitable growth. And the improvement continues.

At present, the results are clear, and summarized in the table below. The division has won numerous awards for excellence since 1990. And perhaps most important, it is now a proud and deserving member of the Baldrige-winning parent division, Westinghouse Commercial Nuclear Fuel.

The WZ Scorecard (1989-1993):

Volume growth	+ 38%
On-time delivery	99.3% (from 48%)
Investment reduction	- 34%
WIP inventory reduction	- 48%
Factory cycle time cut	- 81%
Total employment	- 20% (entirely by attrition)
Productivity increase	+ 59% (lbs/employee)
Major Operating Profit Improvement	(from negative to strongly positive)



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The principals of Performance Associates International helped to formulate and apply many of industry's most effective productivity and quality tools in their roles as senior consultants with the renowned Westinghouse Productivity and Quality Center (WPQC), one of the first such think tanks in the world. Today, PAI's portfolio spans a wide range of industries and businesses worldwide — from Fortune 500 companies to small non-profit organizations.

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