

You Can Go Home Again

by **Susan E. Daniels,**
editor at large

Thomas Wolfe's 1929 classic might have warned that *You Can't Go Home Again*,¹ but Jamie Houghton's love of Corning brought him out of retirement and back to the Corning, NY, company as chairman and CEO in 2002 when it was experiencing what many believed was a fight for survival.

Houghton, a true believer in quality, had retired as chairman of the company in 1996. Just a year earlier, Corning's telecommunications products division had received the Malcolm Baldrige National Quality Award.

Wolfe was right—home isn't the same after you leave and come back. By 2002, Corning was in dire straits. Sales had fallen about 50% thanks to the tanking of the telecommunications industry and the resulting decrease in demand for Corning's fiber optics. Its stock price had sunk from a high of about \$113 per share to as low as \$1.10.

The icon of 20th century U.S. manufacturing and innovation that had produced the first light bulb for Thomas Edison in 1892 was in nothing short of a crisis situation.

Background

When Houghton, a descendant of Corning's founder, first became chairman of the company in 1983, the country was mired in a deep recession. "Corning was barely breaking even. We had to do something to shake the ship," Houghton said.

After Houghton was introduced to the work of quality guru J.M. Juran, he didn't rush into quality. Instead, he consulted all his officers, including Forrest Behm, a leader of several Corning businesses and a member of its board of directors.

Behm was a devotee of quality and, according to

In 50 Words Or Less

- **Jamie Houghton came out of retirement to save Corning from a crisis.**
- **He turned the company around by focusing on quality, values and Six Sigma's DMAIC process.**
- **Corning's future leaders are now trained so quality will be sustained even if the name at the top of the organizational chart changes.**

Houghton, the one who really convinced him to adopt quality principles. Making Behm director of quality seemed like the natural thing to do, Houghton explained.

Houghton admitted to being a neophyte at the time: "I thought quality meant product quality." Between April and October 1983 he visited lots of other companies, most notably IBM. "I got turned on by what they were doing," he said. "By the fall of 1983, I had gotten it through my thick skull that this [total quality] was something we should do."

Houghton said there was a "grim" off-site meeting in October 1983 at which he got up and announced Corning was going to do total quality management (TQM). Several others said we couldn't afford it, but I asserted we were going to do it anyway. I had a gut feeling it was the right thing to do," he explained. "Thank heavens I did—even though I had misgivings."

Then Houghton visited one of Corning's plants, where the manager wanted do quality circles but had a boss who was opposed. The manager did them anyway and increased the yield of processes from 50 to 90%.

This commitment to quality was later reinforced by one noteworthy visitor—Juran. "Dr. Juran visited us in 1985," Houghton said. He was very inspirational—he talked to employees for two or three hours and refused to sit down."

For quality to become embedded in an organization, Houghton firmly believes the top leader has to visibly enable and support it. So Houghton proceeded to visit every single Corning plant and facility and talked about quality everywhere he went. "The leader has to be the quality advocate and has to push it down layer by layer. Eventually people realized it [quality] wasn't just 'Jamie's program'—it was survival," he said.

R&D Anecdote

Jamie Houghton believes innovation is right up there with quality in importance.

It was a struggle when he went to see Corning's R&D people in the '80s, he said. "Oh, you want zero defects or mistakes in our experiments," they declared.

"Of course not," Houghton responded. "You have to have mistakes in experiments. But that doesn't mean its OK to set the experiment up wrong."

The R&D folks are fully on board today and are "doing great stuff," Houghton said.



Jamie Houghton



Don McCabe



Leroy Boatwright

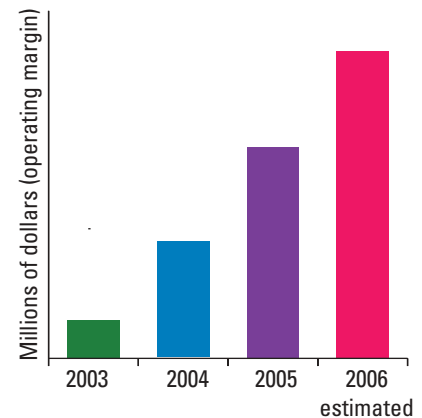
Coming Home

When Houghton returned to Corning in 2002 following his retirement, he immediately noticed two things—quality and diversity—had been put on the back burner.

“Leroy Boatwright had been pushing along as director of quality since 1999 without a whole lot of top level support,” according to Houghton. “Corning was still doing TQM, but with no zip. They just gave it lip service. The quality program had become reactive rather than proactive. It needed a spark.”

Prior to Houghton’s return, Wendall Weeks, then COO and current president and CEO, and Peter Volanakis, current COO, was asking what other companies were doing in quality and what Corning’s focus should be.

FIGURE 1 Financial Impact of Corning Performance Improvement Projects



BEFORE AND AFTER:
The results of two 5S implementations at the sample preparation technology center at Corning’s research center in Sullivan Park, NY.



"When Jamie came back, they were ready to recommend a new focus," Boatwright said. "We then brought McCabe on board and started focusing on values and the Six Sigma DMAIC [define, measure, analyze, improve and control] processes."

Houghton said he asked Weeks and Volanakis to develop a plan to return Corning to greatness. They asked Don McCabe, business leader for Corning's environmental products division, to take on a new, top level role—VP of quality. They chose an operations person for the position, and Houghton says, McCabe made quality "part of Corning's very fabric."

McCabe assembled a community of operationally based subject matter experts across the company. "We gave them the challenge of redesigning approaches to drive performance excellence. This was a great use of talent," McCabe said.

Leadership set higher expectations for quality, and its use was spreading, Boatwright said. "The phrases 'performance excellence' and 'quality in action' were used through the organization. We got refocused on process. Expectations were higher and the use of quality tools helped build momentum."

After Houghton retired as chairman, Boatwright said he observed a difference in the focus and impact of quality. "We maintained the basics but didn't move forward with improvement. Quality wasn't top of mind, although we continued to pay attention to process, values, execution and improvement."

"The program they [McCabe and Boatwright] put together is just dynamite," enthused Houghton.

Corning and Quality Today

Today it's very obvious if you're outside the operating norm for quality at Corning, according to McCabe. "We have embedded expertise in DMAIC, lean and innovation in all facilities throughout the world," he explained.

Lower cost targets are set for business units. For each business unit, a percentage of the cost target will be achieved by using DMAIC, according to McCabe.

DMAIC is the umbrella methodology, Boatwright said, and other tools are used depending on the situation determined in the define step. A proprietary tool called Solution Roadmap automates

tool selection within lean and DMAIC.

Frequently used quality tools are: quality function deployment, design of experiments, failure mode effects analysis, modeling and lean's value stream mapping.

But Boatwright thinks innovation is still the key. "The tools are common, but we have new ways of

Spending a lot of money is not what moves quality. People involvement is what moves quality.

using them, plus better awareness." In addition to about 300 Black Belts (BBs) and 1,000 Green Belts (GBs), Corning has a position called "innovation BB."

McCabe believes quality goals are really operational goals at every level. "Quality methodologies are the engine for meeting those goals. They are visible and communicated to everyone.

"That's why Corning's values are so important," McCabe explained. "They transfer well around the globe because people in other countries really appreciate values. Train each new employee specifically on what those values translate into for on-the-job behavior."

Houghton believes values, such as appreciating quality and individuals, are the context for what you do. "Strategy is the content, but you can't have that without setting the context," he explained.

Quality is something you only have to coax people through once, McCabe added. "When they see that it works, they're sold. Spending a lot of money is not what moves quality. People involvement is what moves quality."

Corning was careful not to spend money on big quality initiatives because internal people doing the work are the ones who know best and who find simple solutions, McCabe said. "Quality is all about employee engagement. In fact, the less you spend,

Advice for Quality Pros

Houghton is a believer that if an organization's leader doesn't truly buy into quality, the quality effort will never work.

"You have to have a receptive boss, and the way to make him receptive is to show him the numbers proving it works," Houghton asserted.

In fact, Don McCabe, the former business leader for Corning's environmental products division and man responsible for returning quality concepts to Corning as vice president of quality, said leadership has to have a passion for quality.

What if you're a quality professional, but you don't work at Corning and aren't lucky enough to have leadership commitment. Here are some tips McCabe offered: Don't disengage or give up. You can eventually get them there. Quality can come from a variety of places: leadership, grass-roots, the marketplace and customers or a crisis.

Calling what you do quality and acknowledging it as such certainly helps, McCabe said. "But most companies are doing it at a higher level and just not calling it quality."

If leadership just doesn't get it, you might just have to leave, or stay and watch the company go under, he said.

Boatwright suggested trying to arrange meetings between uncommitted and committed leaders. Have the committed leaders visit your organization or take your leader to a conference where a quality leader is speaking.

"But, always remember that dollars do speak—along with reduced cycle times and increased customer satisfaction," Boatwright concluded.

the more likely you're doing it right. Leadership is the key."

Translation expenses, for example, shouldn't bar smaller companies from instilling quality principles at overseas locations. While all Corning training and tools have been translated into local languages, it's been done economically. In one situation, Corning used a local schoolteacher in China and an employee's relative in the Dominican Republic to translate materials.

Quality even applies to creativity at Corning (see "R&D Anecdote," p. 31). "People talk about innovation as though it's different from quality," McCabe explained. "But it's another way Corning gains a competitive advantage."

While rigorous process might not directly apply to innovation, it does support innovation at Corning. For example, McCabe said, quality can support the filing of a patent because it helps scientists get rid of bureaucracy and be more efficient.

When Houghton came back and brought about the quality renewal, Corning's philosophy was still aligned to the Baldrige criteria. But, Corning is now using different tools, according to McCabe.

Results

There are hundreds of examples in which quality initiatives have resulted in tremendous savings, according to McCabe and Boatwright. For one example, see "High Impact Solutions From DOE." Accordingly, the top execs are fully on board, and Houghton reiterated support from the top is a must.

Figure 1 (p. 32) shows how the impact of Corning's performance improvement projects is expected to have grown nearly eightfold since 2003.

Financial analysts seem to be interested only in short-term performance—the hard goals, according to Houghton. But he believes quality and people are just as important because "an organization's only real long-term advantage is its people."

Quality at Corning might have started out as "Jamie's program," Houghton commented. "But you need a committed leader of quality to sustain it. That's McCabe, with Boatwright as a great No. 2. But after several years, everyone has picked quality up and made it part of his or her



AWARD TIME: Shown at Corning's 2006 Quality in Action event are (from left) Leroy Boatwright, director of quality; Forrest Behm, Corning's now retired first director of total quality management; Jamie Houghton, recently retired chairman; and Don McCabe, vice president of quality.

High Impact Solutions from DoE

by Jennifer Walker, process engineering supervisor

A design of experiments (DoE) project called Prism at one Corning plant had a goal of improving finishing selects in the production of our core product to meet the plant's 2006 budget goals. Achieving selected targets would result in a substantial savings over baseline performance. The goals required a reduction in defects per million of over 100,000 in the finishing operation.

Experimentation in 2005 determined the root cause of the major finishing select defects. The experimentation did not produce consistent results. With too many confounding factors outside the control of the experiments, we determined a different approach was needed.

Our sister plant ran some of the same products but did not see the same level of defects, so a round robin experiment between the two plants, evaluating each process step for impact on the defects, was developed.

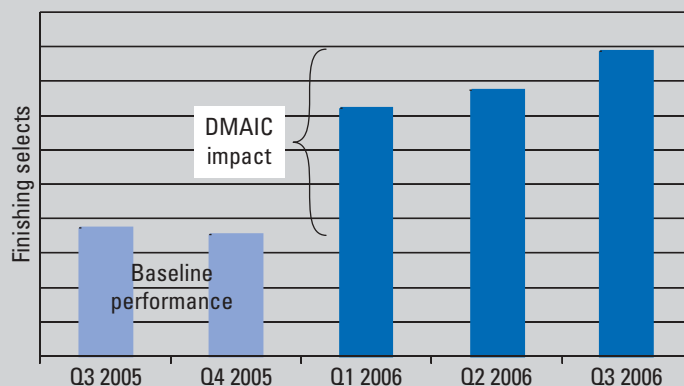
To ensure that concrete results were obtained, the team decided to use a full factorial experiment, with four factors, two levels and 9,600 samples.

The results determined the key drivers for the targeted defects were in two of the process steps. Further experimentation was done to dissect root cause within each of these process steps and solutions were developed. The solutions are almost completely implemented.

The savings in 2006 at the time this article was written were \$2 million, with projected savings through the end of the year exceeding \$2.7 million.

The experiment took two months and the support of both plants. The thorough understanding of the root cause that can come from a full factorial experiment provided specific direction for improvements for a problem that had been investigated by several teams over several years. These solutions had an impact to the bottom line within a couple of months.

Performance Improvement



DMAIC = define, measure, analyze, improve and control.

goals, seeing it as necessary for survival.”

For example, one project team performed DMAIC and statistical analysis and determined the root cause of a problem was in another building. This discovery was nonintuitive and a complete surprise.

We aren't doing this just because it's a nice concept.

In another situation, lab personnel said they needed more space. “But we did 5S and cut the physical size of the lab by 50% by making it more efficient. So we were able to not only become more efficient but also put more dollars into research,” McCabe said.

Less obvious but just as powerful were the reduced cycle times resulting from this 5S initiative, according to McCabe,

There are many similar examples in which savings resulting from quality initiatives have been converted to benefit both employees and shareholders, Boatwright said. “Results are almost guaranteed,” he explained.

A strong quality culture enables organizations to recover from difficult times much more quickly, McCabe added. “Reinforcing metrics and communicating successes highlights what people are doing and encourages others to do the same type of work,” he explained.

To sustain the combination of leadership and results, the numbers have to speak for themselves, Houghton said. “We aren't doing this just because it's a nice concept.”

Future

This time around, Corning is taking some steps to ensure the company doesn't depend on one leader or leadership team to sustain quality. There is an attempt to train future leaders and expose them to quality.

In fact, every two years Corning presents a Houghton Award to a team or business unit. The award criteria are specific to quality, with execu-

tives and others from the leadership team serving as judges.

Houghton returned to Corning to ensure the quality mindset could be sustained. “To do this, the leader has to be completely and visibly committed to quality for five or six years before it can be sustained without him, he said. “The leader has to push quality down layer by layer.”

When Corning got the quality message down to the bottom of the organizational chart, it really caught fire because those people were happy to be listened to. “Fire from the top, fire from the bottom then meeting with middle management,” Houghton explained. “We had to convince members of middle management they were teachers and consultants, not bosses.

“A leader has to believe in and internalize his belief in quality, then preach it and keep preaching it,” Houghton said.

With a quality mindset firmly embedded into Corning's corporate culture, Houghton's second retirement earlier this year should be his last.

ACKNOWLEDGMENTS

This article is based on the following sources: interviews of Jamie Houghton, Don McCabe and Leroy Boatwright conducted by Debbie Phillips-Donaldson, former editor of *Quality Progress*; her notes of a presentation by McCabe at the June 2006 leadership summit at the Juran Center for Leadership and Development at the University of Minnesota; and her notes from a video interview of Houghton by Mike Adams, chair of the awards committee of the Juran Center. The video was presented at ASQ's World Conference on Quality and Improvement in Milwaukee in May 2005.

REFERENCES AND NOTES

1. Thomas Wolfe, *You Can't Go Home Again*, Harper Perennial Modern Classics, reprint edition, 1998; originally published in 1929.

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