Associates Participate in Making SGS Tool Company Globally Competitive

Outperforming the competition through people power.

Karen Wilhelm

SGS Tool Company had its beginnings in a small garage off Johnston Street in Akron, OH in 1951. Now, more than 50 years later, associates design, engineer, and manufacture high-quality end mills and machine-ground burs, precision drills, reamers, and similar tools in four plants outside Akron. Though small, the company is truly global — its tools are sold in 60 countries.

SGS gives its customers in the aerospace, automotive, and die industries the ability to achieve massive material removal, smooth surfaces, tight tolerances, and increased productivity from both machine and tool. Materials SGS customers cut range from titanium to aluminum, steel to oak. If a customer has a special application, SGS’s Machine Technologies Division will duplicate the customer’s operating conditions, then design and build the tool the customer needs.

Each of SGS’s production plants is dedicated to a segment of its product line, allowing its workforce to be fully trained in the unique geometries of the tools they produce. Jack Haag, the company’s founder and chairman, places empowerment at the top of the list when describing the company’s philosophy, saying, “When you want people to perform, stand back and let them.” He believes in giving the people who do the work authority and responsibility for anything that affects their work. That means each one of SGS Tool’s associates and managers keeps an eye on the big picture, the end product of every operation. Each individual makes a contribution to the success of the company and its future.

Don’t make the mistake of thinking SGS’s leadership ever walked out on the shop floor and “empowered” everyone. It took a plan, and time. Everyone receives continuous

In Brief

“When you want people to perform, stand back and let them.” That philosophy of employee empowerment gives SGS Tool Company competitive strength. All associates keep an eye on the big picture, striving to improve their contribution to the success of the company. Tools designed and manufactured at the Akron, OH operation are sold in 60 countries.
improvement training. Associates themselves, after special training, lead classes that focus on improving interpersonal skills and solving problems as a team. SGS also develops specialized technicians in a certified apprenticeship program. As Jack Haag puts it, "SGS tools outperform others, because SGS people do."

Marge Holata, director of associate involvement, says SGS has been successful at implementing continuous improvement and lean because they started in the direction of employee empowerment long ago. In the mid 1980s, Jack Haag went to Holata, who was then the company’s human resources (HR) manager, saying, "You know, I’ve been thinking we really need to start getting people involved in what we do."

Holata recalls, "When he came to me with that, I was elated. It was something I knew we should be doing, but at most companies, HR managers have an uphill battle trying to convince management they should do it. I had just the opposite. I had the owner saying he wanted to do this. I remember saying to him, 'Jack, be sure you really want to do this because once you start it there’s no going back.' He and the Haag family have always been supportive.

"We started laying a foundation with the interpersonal skills training," Holata continues. "We didn't even know about lean back then. We just wanted to get people involved in the management of the company. We wanted to get them educated in how to work together in teams. When we started learning about kaizen and lean, we already had people working together much more cohesively than you see in other companies. So it was kind of an easy transition. It was just the next move, the next level up."

**Journeys**

After Jack Haag retired as president in 1992, his tenure was followed by several years of attempts at empowerment, and sometimes the command and control approach resurfaced. It wasn’t until the discovery of the Scanlon Leadership Network in 1997 that leadership began a strategy to regain the spirit of empowerment.

In 1998, SGS Tool joined the Scanlon Leadership Network with a plan to embrace the Scanlon principles (see a related article in this issue). This reinforced employee participation, and laid the groundwork for SGS's gainsharing program, which opened doors to practices developed by other Scanlon companies.

Although Holata had left SGS in 1997, moving to the auto supplier Masco, SGS asked her to come back in her present position as director of associate involvement soon after becoming involved with the Scanlon Network. At Masco, Holata had seen lean manufacturing in action. She says, "The first thing I said when I met with SGS was, 'We have got to look at this kaizen stuff.' I sent a couple of our people to participate in a kaizen at Kennametal and they came back as excited as I was, but we didn’t know what the heck to do. We didn’t know how to get started."

SGS then turned to Summit Business Consulting’s Fletcher Birmingham for help. He tells how the transformation started: "The plan was that I would provide the orientation and early guidance, and several of the shift leaders would later become facilitators. The first meeting I had was with the shift leaders, as SGS called its plant managers, of its four facilities. They looked like I had just dropped in from another planet when I started talking about lean practices, involving people and organizing and improving their workplace. Lean was really different from what they had experienced.

"We agreed to start with one kaizen event," Birmingham says. "I’m pretty sure that Marge had to twist arms to get people into that first kaizen. I don’t think there were any volunteers. No one knew what they would be volunteering for and nobody wanted to be at the head of the line. Marge had to go around and quietly say, ‘This will be good, you ought to try it,’ and use a little persuasion to get people to sign up.

"Our first focus was on setup reduction of the CNC precision grinding machines in the end mill division. Setup and changeover time were not being tracked or measured, but the personnel running the machines were very conscien-
tious," continues Birmingham. "In fact, when we set out to get our baseline, the operator had already done everything he could do to reduce setup and changeover time. After an orientation to lean setup reduction, he said, 'This will be easy. I've been working on this and here's what I've got changeover time down to.' Marge and I looked at one another. They've already prepared. They've already reduced setup and changeover time, so what do we do? In any kaizen event, it's not unusual to find out that people have done something ahead of time to get ready for it. So we said, 'Since you've already done that, let's simply videotape it, record it, and share it as a best practice. That way, everybody else can follow suit. If we have a couple of other ideas, we'll share them and just build on that.' We figured we could just make the best of this. We found that the operator had already learned to get the paperwork and tools ready for the next order before he finished his current one. Yet we also found that there were tools he needed that weren't located near the machine. He was doing a lot of walking and searching."

Operators didn't need a lot of tools but they could now see that they had been looking around for them, or picking up damaged tools that should have been thrown away. If it didn't work they put it back and picked up another one and if that one didn't work they put it back, and so on. "That kind of activity is frustrating, so as soon as we had working tools and a toolboard, that idea stuck," says Birmingham. The group ended up making a toolboard for the required fixtures and tools and placed it right next to his machine. The operator really liked that because it made it easier for him. Pretty soon every machine in that facility had its toolboard. Birmingham explains, "The idea spread for a couple of reasons. For one, we videotaped the improvement and put it on their website, and used it as a learning. And maybe there was a little bit of pride going on there where one person saw it and said, 'I can do that and I can do it even better.'" A member of the facility's maintenance group who was part of our kaizen made the first toolboard. The maintenance group immediately had requests and started making toolboards within a matter of a month or so.

**Disappearing Toolchests**

One thorny issue in many companies is toolchests. Many operators at SGS came from a machinist background. They took

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<th>Suggestion program</th>
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<th>Kaizen in large-diameter end mill division</th>
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great pride in the size of their toolchests and how many tools they had. When the kaizen team started to talk about organizing tools and the video showed how few tools were actually needed, there was a major reaction.

Birmingham showed the group a Boeing video on 5S. He says he uses it because it shows that quick setup and changeover include organizing your work area. Setup reduction and 5S are interconnected. In the Boeing video there are before-and-after shots of the main landing gear door assembly area. The first shows toolchests sitting next to the worktables and along the wall. The Boeing workers describe how, once they identified their tools and organized them, they no longer needed the toolchests. In the second shot, all those toolchests have disappeared. That visual really registered with the group. Their reaction, says Birmingham, was, "You mean you want us to take our toolchests home? We're not going to do that."

Birmingham continues, "So our very first kaizen, we're talking about employee involvement, and the third day into it we've got this major pushback. So we said, 'OK. We're not going to ask you to take your toolchests home. But let's put toolboards by the machines with the tools that you need. And the designated place to park your toolchest is by your lockers. Should you find later on that you need them, that's fine.'"

Within a couple of months, the toolchests disappeared. People realized that often the only reason for the toolchests was to lock tools up so nobody would take them. Once they had toolboards, SGS had to add a certain number of tools until they figured out how many were really needed and there were enough to go around.

Birmingham says, "We worked our way through it because, with the anxiety over this first kaizen, and trying to create employee ownership, we knew that if we pushed too hard we wouldn't get buy-in. At the same time, if you don't change something like the reliance on having your own toolchest next to your machine, there's a great danger you're going to fall back to where you were before."

That first kaizen was a toe in the water. There was a good setup and changeover practice documented in video and in writing that could be used in training on setups. And the 5S had gotten some tools organized.

**Sustaining the Program**

The vision from the beginning was to train kaizen facilitators to do what Birmingham did at the start. A truly cross-functional cadre of them has now been developed. Steve Curtician, a manufacturing engineer, and Jenny Wiemers from accounts payable are two of them. Curtician says, "It's really great, the way that we get involvement from all of the different departments. I was awfully skeptical about bringing in an accountant like Jenny. I was in manufacturing and I thought, 'What in the world could she possibly do for me?' I learned that she can do a lot. She can offer an outside perspective. If I always hit this button with my left hand, she might ask, 'Why not with your right?' Just something simple like that."

Wiemers tells how she got started as a facilitator. "I saw a signup sheet for new facilitators for the program," she says. "I didn't really know anything about lean or how our manufacturing areas worked. I just thought it would be neat to be involved in a team organization, so I volunteered and took the training class and went on from there. I have learned a lot just from being in the team and realizing that somebody from outside your own department can help you."

Wiemers describes how she leads kaizen events. "Typically we start off with what the goal of the kaizen is, what we're actually trying to achieve as our outcome," she explains. "Then we briefly go over the methods we will use — a process flow map, spaghetti chart, or that sort of thing. Then we get started. We go right out into the plant with our maps of the location and our flip charts and our timers." (See Figure 1.)

Holata adds, 'When they see us coming, they know things are gonna be a-changin.' At the beginning we took a lot of
flak about being out there and wasting time. 'What are these people doing standing around watching everybody when we've got work to do.' Yada yada. But now I think almost everybody is happy to see us, because they know we're going to make the job easier and better somehow. Plus, with our gainsharing program, when they see the improvements being made, they can see additional gainsharing for that quarter.

Recently Wiemer led a kaizen on in-process inspection in the bur division. She explains, "We inspect the tool we're making at many different points in production, and the paperwork that had to be filled in was very cumbersome. You would have all this paperwork that kept streaming down-line with basically the same information. It was just very time-consuming to fill out the forms, even though they checked the same attributes each time. They were writing down information that really wasn't utilized anywhere and didn't help their inspection process. We minimized the process to where they just did a check-off saying, yes, this was done."

'It saved hours, literally hours," says Holata, "and thousands of dollars. We watched the process for a couple months and had some unannounced audits to make sure we were not risking our reputation for making the highest quality carbide tools. We never had a problem with it. It's worked out wonderfully, so we have implemented that same procedure in the other three buildings."

Curtician reflects, "When I got started into it, I was the one that didn't want any of my stuff taken away, and didn't want to change. But once I realized how it made life so much easier for me, I fully embraced it. Now I try to knock down some of the walls. I try to change people who were just like me. Everything that we do just helps so much. Even the people who aren't on board at the beginning of a kaizen realize by the end of the week how much it's going to help them with their job."

**Past, Present, and Future**

Holata says, "When we first started, it was real easy to make improvements. We were scooping up the low-hanging fruit. But now we go into an area that we've been through two or three times already. You've really got to scratch a little bit deeper but it's just amazing how transparent things become. You get that group together and start looking at the process and stuff just pops out at you."

Wiemer sees a whole new arena of lean improvement ahead. "I think we know how to improve in the manufacturing area," she explains. "Now I would like to see more improvement in the administrative areas. We've done a little bit of cleanup here and there. I don't know that it's really hit home to the associates yet. They need to have that thought in their minds — What can I do to improve in my area? What can I do to improve the paperwork process flow? In administrative processes it's so much harder to see, especially when you have system-generated stuff. You don't always think you can control that."
Training Creates Competency and Effective Participation

Marge Holata says, "My feeling is that lean is not just slashing your inventory and going around cleaning up stuff. Lean is getting people to really understand and open up. I've always felt that, in a company of only about 350 associates, it's very unusual to have somebody full-time in my position. Only big companies usually have somebody like me, so it shows a huge commitment on the part of the ownership of this company. I have a big budget. Every time I say we're going to do training, and I'm going to take people off the production floor, I get support. That's what I meant when I originally told the owner that once we start this, we're going to keep doing it. Because you can't just stop. It just takes either the owners or senior managers understanding that it's money well spent, but you just won't see those green dollars right away."

All new associates participate in a training module, called SGS LITE — LITE stands for Lean Industrial Technology Education — based on the Scanlon Network's Lean Simulation. The manufacturing simulation, which uses wooden models of production machines, is set up in a conference room. For the first round, participants are told exactly how to run it. The trainer puts a profit and loss statement up on the board, and participants see where all the money goes. The first time through, they always lose money.

After that first cycle, participants get together and talk about changes and ways to improve. They get two more rounds. Five minutes equals a week of production. The equipment has to stay the same. They can't make the machines go any faster. Each time they go through another round, a new profit and loss statement is produced in Excel, and they can see how their small improvements add to the bottom line. "When they can say, 'Here we are at the third round — we're making money,'" says Holata, "they come out of the simulation understanding lean a lot better. They're really pumped."

Holata says SGS has recently put together another training module called Kaizen Advantage. Whereas most companies conduct kaizen training only as part of an event, all SGS associates have gone through it, and now it will be part of new associates' training. It covers topics like lean, 5S, and value stream mapping. Now with everybody trained, they can hit the ground running when there is a kaizen event.

"By the end of their first year," says Holata, "they'll have gotten a good taste of what lean is all about. I feel very strongly that it's my job to make sure everybody understands lean. It doesn't happen by itself. We have done so much training here, in interpersonal skills as well as lean, and we continue to do it. We'll always do it, at least until I'm gone. It's the people that keep us moving ahead."

Customer-conscious Culture

At SGS, the culture supports the idea that it's all about the customer. Steve Curtician says, "The machine operators are aware of their internal customers and take care of each other. The company's intranet site talks about some of our end users and how our products are used and they get a lot of pride out of that. When customers come in for plant tours, it's not just a dog and pony show. The associates who run the machines, do the setups, and make the tools explain to visitors what they are doing and how they're doing it. In turn, they hear how their tools are being used to manufacture the customer's product."

Sales engineers in the field form another liaison with customers. Each year, when SGS holds a sales conference, the sales engineers spend time in the plants and the R&D lab. They talk to the people on the production floor, and know a lot of them by name. They can come into the end mill division and say to an associate, "I was just at XYZ company last week and I showed them how to use this particular tool and it reduced their time by two hours." Sales engineers have even been known to participate in kaizens.
Tom Haag says, "The plant-floor associates are the ones who really know what they're talking about. I like to pretend I do sometimes, but the associates running the machines can really tell you what's going on. It's great to see them get involved with customers."

Strategic AIM

Tom Haag says SGS discovered hoshin planning (also called hoshin kanri or policy deployment, and dubbed AIM — Associate Integrated Management — at SGS) via the Scanlon Leadership Network. Donnelly, now Magna Donnelly, a first-tier automotive supplier and Scanlon member, put on a seminar to teach other network members about the hoshin planning method they had adopted.

Tom Haag tells it, "We sent one of our bright-eyed new MBA graduates to the meeting, and he came back with a full strategy for how he wanted to implement this new system. Everybody saw the value in it, but also knew how much work it was going to take to get the thing started. It probably took a year or two before we had our first policy deployment templates. It was probably about three years from when we started before we began to feel like we were making progress, and another two years to fine-tune it. It's not something that happens overnight.

"Why do we do it? We knew we wanted a system to measure the business and the progress that we were making and this seemed to be the right fit," he continues. "It doesn't allow you to become too focused on one or two key measurements. If you have a plant manager who says he made 5000 pieces today when the goal was 4750, that's fine, but how much scrap did he produce? How much sales value did the 5000 units represent? It may have been a low-value product that was easy to manufacture. Hoshin planning enables us to balance those measurements and make sure none of them go too far out of control.

"The other foundation that it laid was a system that measured continuous improvement. We didn't even know that's what we were doing," Haag says. "But that gave us a nice surprise when we wanted to

Figure 2. Kaizen 5S activity organizes the work area and removes clutter, thereby reducing setup times (and frustration). These photos show the area where operators prep diamond wheels for their next setup.
be certified to the ISO 9001-2000 standard. That required this type of measurement process, showing progress towards continuous improvement. We found ourselves almost in a state of shock because the hardest part of going to the new ISO standard was already done.

"AIM takes top-level strategy and cascades it down through the departments and then down to individuals and the tactical action they'll perform to accomplish the departmental goals. That includes anybody on the shop floor, in the distribution center, in any clerical position, and all the way to the president. Jennifer (Wiemer) can look at the accounting AIM and see our accounts receivable goals," he adds. "She understands how her work impacts the company, because her department measures cash flow, profit, and receivables average-days-past-sales each month. Those are all discussed on a monthly basis. Even the person who mops the floor knows how that ties into productivity and safety in the plant."

Fletcher Birmingham says a big turning point at SGS was when the kaizen events were connected to their AIM planning process. "Each of the shift leaders was accomplishing AIM goals by using kaizen events," he recalls. "That was an important linkage and it probably took a year to 18 months before that linkage was defined. That smoothed the way for the people running the plants to say, 'We need a kaizen over here. When can we get one? This problem is getting in the way of our AIM goals.'"

**Innovation Required**

Haag and Curtician recently participated in an "Innovation Tour" of 3M arranged by the Scanlon Leadership Network. "The innovation process is tough," Curtician says. "This tour opened my eyes. Each one of our four plants is excellent at what they do, but what we've been thinking about since we've gotten back is to start putting all those technologies together. If I make this product over here and this product over here, what happens if I put those two together?"

"The analogy I use," he continues, "is that some people are really good at glue and adhesives, and some people are really good at abrasives. When you put the two together, you get sandpaper. I don't think the two people who first did that had any idea that they were going to come up with sandpaper."

Asked about the first one or two things he'll be doing as a result of the conference, Curtician says, "Each quarter, one of the plants is going to put on an innovation tour and explain some of the things that that plant does really well. Because I get the luxury of seeing all the different manufacturing plants and see how they all function, it drives me crazy that they all don't know what each other is doing all the time. We can all communicate a lot better and we can start sharing our knowledge. I know that seems simple — we're all the same company — but it's hard to communicate that."

Holata says, "Our buildings are only a few miles apart, but they don't always know at the bur division what they're doing at the end mill division. The bur division is the first one that's going to put on an innovation tour so that the plant managers and facilitators from the other buildings, the administrative people and other associates, can go through. We'll just say the bur division's going to be open this day and we're going to show you what we do and what we do well. Other people can take that back to their buildings and say, 'Why can't we do that?'"

"It will spark a lot of creativity," says Curtician. "I can learn things in one building and apply them to others, but I'm just one person. I think that when the guys who run the machines, the people who are out there doing the work, get exposed to it, the creative process is really going to start to flow."

SGS took nine people on the 3M Innovation Tour and the company typically takes about 20 to the annual Scanlon conference to bring in new ideas. Holata says the International Manufacturing Technology Show (IMTS), held every other year in the Midwest, is another opportunity to bring new thinking into the company. "Obviously," she
says, "we have our sales engineers at our booth there, but I also run a contest here and take ten or 12 associates to the show for a day. I've taken fellows there who have never been out of Akron or never been on an airplane. We take the first flight out in the morning and come back on the last flight back home. That's a long hard day but it's a real eye-opener. They see all the competition and the builders of the machines we use. We've also taken groups to different Scanlon companies. We're always looking for different opportunities to go somewhere and learn stuff, and share with other people."

With all associates involved in managing the company, thinking about process and product improvement, and connected to its customers, SGS Tool Company is thriving in a tough global industry. "It's always a journey without a destination," says Tom Haag. "There should never be complacency as to where we are and never declaring victory over the competition."

Editor's note: A related article, "Scanlon Principles Lay the Groundwork for Lean," also appears in this issue.

Karen Wilhelm is a freelance writer and publisher of the blog, Lean Reflections.

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