

All Together

Close cooperation among workpiece materials suppliers, machine tool builders and toolmakers can help parts manufacturers take advantage of new technology.

Successful companies help their customers realize new potential advantages as quickly as possible. In the metalcutting industry, advantages may come from an improved workpiece material, a new cutting tool geometry or a more advanced machine tool.

However, an advantage will only be useful to a parts manufacturer if other technology allows the company to realize the better feature. Unfortunately, a new technology sometimes outpaces the capabilities of other current technologies. A new cutting tool technology may leap ahead of machine tool technology, so companies have to wait for machine tool builders to catch up and introduce a machine tool able to use the tool's advanced features.

Likewise, builders have sometimes created machine tools with capabilities that required toolmakers to catch up. Also, both builders and toolmakers may have to hustle if a new material possesses advantages that their products can't realize.

But upgrading cutting tools and machine tools can take months or years, making parts manufacturers wait.

A Shorter Wait

The wait, however, can be shortened through close cooperation between materials suppliers, machine tool builders and toolmakers. Ideally, the cooperation occurs during the new material's development, so toolmakers and machine tool builders have their products ready for the improved material when it's introduced in the marketplace. That cooperation now exists between some companies and may become more widespread with time.

"Today, it's more hand-in-hand,"

said Kenneth V. Sundh, president of Sandvik Coromant, Sandviken, Sweden. Sundh and other presenters discussed cooperation during a press tour of Sandvik Coromant facilities in Sweden held this past summer.

But, while companies cooperate more, they don't cooperate always. Chris Mills, a Sandvik Coromant application development manager, cited titanium 5553 as an example.

The material, Ti-5Al-5V-5Mo-3Cr, has been available since at least 2004. In *Advanced Materials & Processes*' October 2004 issue, in a joint paper, The Boeing Co., Chicago, and material supplier Alcoa Howmet, Whitehall, Mich., described the alloy as having "excellent hardenability and strength characteristics, which make it attractive as a structural titanium-casting alloy." The two companies tested the alloy's castability and obtained "very encouraging" results.

Many toolmakers, though, would have preferred to know about the material when it was still in development so they could have ensured their tools were suitable for cutting the titanium alloy when it became available.

Consequently, when cooperation doesn't occur, companies need to be able to catch up as quickly as possible. To do that, development time needs to be minimized. As an example, Sandvik Coromant created a program called Half In Three (HIT) that aims to halve the toolmaker's total development time, from identified customer need to introduced product, by 2008.

In at least one case, the toolmaker reached that goal. Bertil Isaksson, a Sandvik Coromant senior project manager, said the toolmaker has typically required 4 years to develop a new

cemented carbide grade. To comply with HIT's goal, the toolmaker has to reduce that time to 2 years. "The latest grade that was introduced took about 2 years," Isaksson said about the GC4200 series.

Moreover, 2 years isn't Sandvik Coromant's end goal. Isaksson said the toolmaker intends to reduce development time to 1½ years.

Also, shorter development time accords with the industry's faster rate of change. "The life cycles of our products are becoming shorter," Sundh said. "In 5 years' time, 50 percent of our products [will be replaced]."

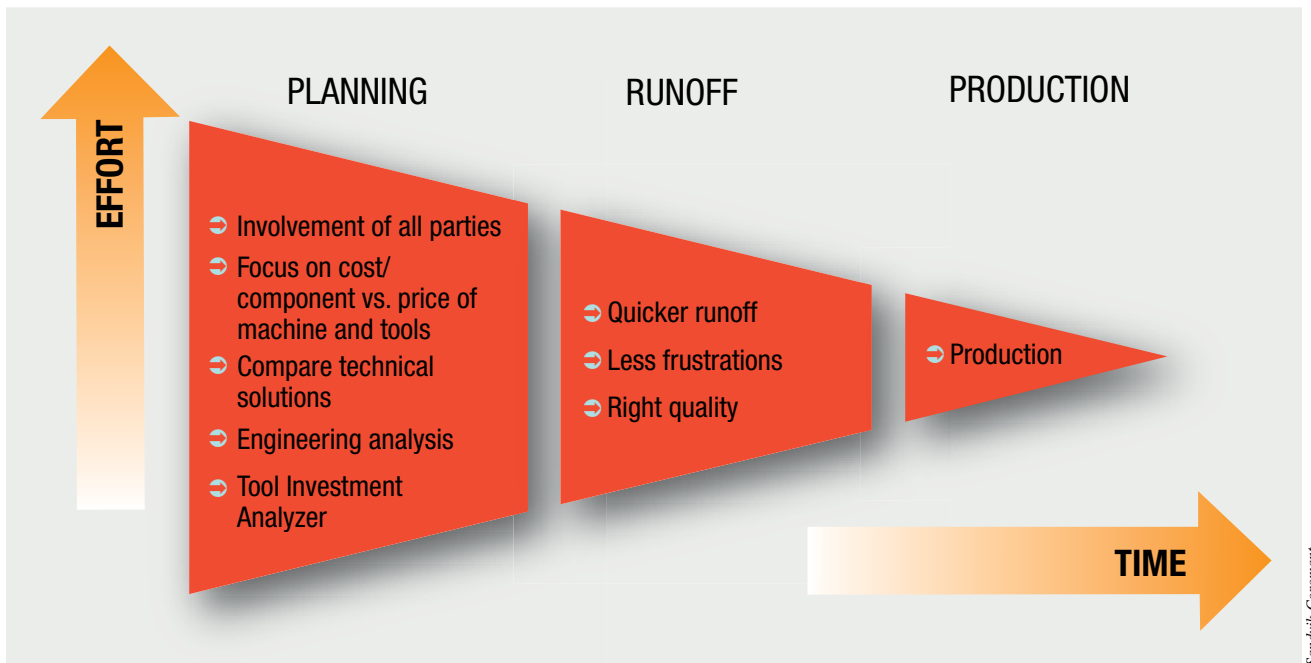
Accelerating replacement of products with new machines and cutting tools may lead parts manufacturers to more frequently review their processes in cooperation with toolmakers and machine tool builders.

Process Improvement

Also, close cooperation can benefit parts manufacturers beyond the introduction of new materials, cutting tools and machine tools. Mills said Sandvik Coromant emphasizes increasing manufacturers' productivity and reducing their production costs, downtime and tool costs. Companies may create those changes through several methods. "We focus on the bottlenecks," Mills said.

By doing so, toolmakers like Sandvik Coromant may best serve a manufacturer not by supplying a better drill or a better turning insert that will allow the company to improve its productivity, but by reviewing its manufacture of a part and recommending a process that will significantly improve productivity.

"We may come in with a whole new process," Mills said. He added, as an example, that Sandvik Coromant



Sandvik Coromant

Sandvik Coromant focuses on cost per component rather than prices of machine tools and cutting tools in helping a machine shop create a process for manufacturing parts. The toolmaker's process scenario also emphasizes the planning phase to reduce the number of problems during runoff and production.

might suggest helical interpolation rather than drilling if a company's part production would benefit from it.

Mills added that Sandvik Coromant may even review the part and consult with the manufacturer if it sees a potential advantage that may be realized only if the part can be re-engineered.

Besides improving productivity, a parts manufacturer may save money—and not just directly through a longer-lasting tool. “He may be in a situation where he can avoid buying that [new] machine,” Sundh said.

Cooperative Effort

Close cooperation between companies is a time-consuming, involved process, though. “We’re not talking about a quick and easy fix,” said Lars Bursche, chairman of Sandvik Coromant’s sales companies in Sweden and Norway. “It’s very exhausting. It’s like playing tennis in a football stadium.”

Bursche cited Sandvik Coromant’s work with an international company to improve its metalcutting operations.

Sandvik Coromant was trying to win the manufacturer as a customer. But Sandvik Coromant’s tools were more expensive than those being used by the company. Consequently, Sandvik Coromant had to offer a different advantage.

The toolmaker promised to improve the company’s productivity by 15 percent. Sandvik Coromant and the manufacturer selected work being done at a Denmark factory for improvement. Sandvik Coromant then reviewed project drawings and checked the CNC programs and floor-to-floor times, among other aspects of the work. The resulting productivity improvements freed up production time. According to Bursche, the factory expects to save 4,000 hours in this year and next.

To achieve such savings, the toolmaker may need to create a special tool for the parts manufacturer. To do so may require the toolmaker to include the parts manufacturer in the development and engineering of the needed tool. In that case, the toolmaker may have to reach an exclusivity agreement

with the parts manufacturer.

Also, Isaksson cited an international, high-volume parts manufacturer that has a facility in Sweden. With Sweden being a high-labor-cost country, Isaksson said the manufacturer needs the plant to be highly productive to compete with facilities in low-labor-cost countries so it can stay in Sweden. Sandvik Coromant helped the company remain competitive by improving its productivity by reviewing and changing its methods of production, such as how cutting tools were entering and exiting workpieces.

The larger goal of improved productivity was achieved even though a smaller goal of lower-cost tools wasn’t. “Cutting tool costs actually increased a little bit,” Isaksson said. “It was the cost per component that was reduced.”

Benefits like this help parts manufacturers improve and remain competitive in the marketplace.

“What we did yesterday is not good enough for tomorrow,” Isaksson said. △