



Modern Machine Shop

## Seco Explains 3 Industry Buzzwords That Can Boost Your Bottom Line

James Langford | Jul 26, 2022

One of the first questions Patrick De Vos gets in a typical meeting with customers of Seco Tools is about the barrage of industry buzzwords hinting at sophisticated approaches to boosting long-term bottom lines: sustainable machining, economic machining and optimized machining.

"What does it all mean?" they ask, with a follow-up question like, "Whenever people start talking about that, they throw around complex mathematics, and my little company doesn't have time for all that. Can't you come up with some easy-to-understand guidelines?"

Yes, he can.

As the senior consultancy expert and corporate manager of technical education programs at Seco, a unit of Stockholm-based Sandvik Group, De Vos' responsibilities include advising clients on how they can put their tools to work most effectively and profitably.

To do so, he often employs the concepts described in those buzzwords, translating them into everyday language to show machine shop owners how front-end strategizing can avoid frantic back-end scrambles to resolve costly machine breakdowns and other job interruptions.

Effective machine-job organization considers three concepts that are structured like a funnel, from broad ideas such as sustainable machining to narrower tactics related directly to execution:

### 1. Sustainable Machining

While the term sustainability is commonly used to refer to environmentally friendly practices, it's also applied much more broadly. At its simplest, says De Vos, it's doing things today in such a way that you can continue doing them tomorrow.

For machinists, that means building competitively priced products that meet the needs of customers, provide quality throughout their life cycle—from design to production, usage and recycling—and reduce environmental impact and energy usage to a level in balance with the planet's carrying capacity.

Characteristics of sustainable machining include competitive pricing, efficient processes, fast response times, short lead times, low working capital and safeguarding knowledge and skills, De Vos says. A motivated workforce is the cornerstone that ties everything together.

## 2. Economic Machining

Economic machining focuses on developing and improving the production process so that it's the best the company can achieve in terms of minimizing cost and time.

That means ensuring equipment operators understand the machines they're using, can recognize what they're seeing and interpret it correctly. Most of the time, that requires looking at tools. The wear and tear on them will show the efficiency of the process.

"If you have that insight," De Vos says, "that's the moment we can make the jump beyond the technical stuff into machining from an economic perspective."

An important part of economic machining is smarter tool selection, which should be done in line with key performance indicators for productivity, economy, versatility and quality.

The correct tools can, for example:

- Support efficiency, in terms of both cost and time (Economy)
- Assure a trouble-free process that delivers finished products of consistently high quality (Quality, Productivity)
- Support strategic variability and flexibility in production (Versatility)

Next comes what De Vos refers to as knowing your playground, or determining what can be expected from the tool you select once you bring it into your workplace.

That means considering constraints such as chip formation and evacuation, mechanical and chemical loads on the cutting edge and demands for quality of the machined surface.

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Patrick De Vos  
Seco Tools

Success requires knowing the constraints of the machinery, equipment and tools and having the discipline to respect and work within them, he explains.

"When doing this, trouble-free, reliable and predictable machining is the result," De Vos says. "Quality comes with a price, yes, but the price needs to be reasonable. Customers are not willing to wait forever until things are delivered. Customers expect the products—the workpieces—tomorrow, next week or some other selected time at the agreed price."

## 3. Optimized Machining

Optimized machining involves ordering workflow to deliver the most economically efficient and sustainable results. That order is typically the reverse of what workers do, in reality, every day.

"They start by selecting the cutting conditions and then they go backward," De Vos says. "My message

is more, 'Start general and work forward so that when you're standing at the machine you already know what you want to do and can select the methodology, strategy and cutting conditions that support what you want to achieve technically and economically.'"

Consider operational data including:

- The operational window for trouble-free, reliable, predictable machining
- The maximum depth of cut, maximum feed and the correct balance between the two
- The maximum amount of tool wear that's tolerable, the desired tool life and the cutting speed that enables both.
- Whether machine power is sufficient for the selected cutting speed. If it is, consider increasing speed to boost productivity.
- If it isn't, return to the second step and reduce the depth of cut.

One customer, De Vos recalls, told him that after studying shop operations he had determined that equipment spindles were running only 20 percent of the time—meaning that in a typical five-day workweek, they were idle on four—yet his employees were working extremely hard.

Closer examination showed that the majority of the time, those workers were trying to solve problems that wouldn't have existed if they had started the job correctly.

Instead, "they drilled a hole, broke the drill and then started to investigate what was going on and found out that, from the beginning, the selection of the drill was wrong," DeVos says.

"What I want to achieve with this," he adds, "is that you don't wait until something becomes a problem but use a proactive approach and make sure that it does not become a problem so you don't lose time in solving the problem."

***What problems could your shop avoid by approaching workflow on machining jobs differently? Tell us in the comments below.***