



Mine Altering Experience

Detailed Capacity Planning Can Improve Productivity

Common wisdom has it that “the more you put into something, the more you get out of it.” That may apply to many things in life but mining isn’t among them. In fact, there isn’t a better way to go broke than by indiscriminately pouring a disproportionate amount of resources into a hole in the ground, even when the results appear favorable.

Yet, according to Joe DiNapoli, head of USC Consulting Group’s mining practice, this is exactly what any number of mining companies do - albeit unconsciously - most of the time. “That’s because in their capacity planning process” he contends, “they commonly make errors that lead to over-deployment of assets, primarily men and machinery.”

The most common of these errors is basing the coming year’s plan on last year’s actual production level, and then compounding the mistake by assuming a high level of productivity improvement. This inevitably leads to unsatisfactory results, i.e., lower-than-planned

production and/or a higher-than-budgeted cost per ton.

This situation can be easily avoided through the use of a capacity planning approach and model that starts from an altogether different perspective: Define the targeted production level, then determine the resources required.

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The plan then realistically takes into account the many variables that can favorably or unfavorably affect it.

These include such elementary considerations as rated machine capacity, the age and condition of

available equipment, historical meantime between failure, and average downtime for various types of maintenance procedures. It also takes into account the age of the property, recognizing that, in more mature operations, longer travel times and distances adversely affect both labor productivity and equipment reliability - not to mention upkeep and repair costs.

A good capacity plan delves into a much deeper level of detail than most mining operations are accustomed to. It is a valuable tool that in itself will not improve performance, but can establish optimum performance levels.

A detailed capacity plan can also open the lines of communication to actually begin an evolutionary change in responsibilities within a mining operation. It motivates the mine’s planning group to develop a workable plan based on attainable levels of performance stemming from improved equipment reliability.

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This is key to getting production and maintenance groups to focus on consistent, long-term execution instead of minute-to-minute fire fighting.

“No one works in an ideal world,” says DiNapoli. “Delays and setbacks are normal in most mining operations. But, unless we plan based on what is optimal, we may never achieve what is possible.”

This is where more realistic assessments of human and capital resources can be used to drive more accurate budget and more robust production planning processes. Detailed unit costs aggregate up to the expense forecast, allowing for different revenue forecasts based on alternate business models, e.g., mining different areas, mining the same areas in a different sequence, or mining under different staffing and productivity assumptions. When completed, the capacity plan will also support the daily, weekly and monthly production reports and provide the ability to re-forecast as needed to reflect changing site or market conditions.

One open pit zinc mine provides a good example of how improved capacity planning was used to avoid a major and unnecessary capital expenditure.

“Mine management was concerned it didn’t have enough shovels at its disposal to keep up with the trucks it used to haul zinc and strip away overburden. They were considering the purchase of a \$5 million shovel to guard against falling behind the production schedule,” recalls Dean

Carrier, USCCG operations manager.

“An analysis of current maintenance records and procedures revealed that a combination of bulldozer breakdowns and longer distances traveled by trucks were the principal reasons for under-attainment of plan. By doing a better job of predictive and preventive bulldozer maintenance - enabled by the addition of just one ‘relief’ unit

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at a cost of \$50 thousand - and better truck routing and scheduling, this capital investment was avoided.”

Traditionally, “more and bigger” has been the favored approach to obtaining greater throughput but, going forward, “the emphasis will be on gaining control over the variables that can mean the difference between success and failure,” predicts DiNapoli. A well thought out capacity plan offers significant benefits across a mining corporation:

- corporate can take a zero-based and

thus, more realistic approach, to capacity assessment and attainment;

- mine management can avail itself of a simplified and more accurate budgeting process; and
- supervisors gain more control over the production process through more flexible scheduling and better coordination of men and equipment.

But, according to Jack Korpela, senior business development executive and executive partner for USCCG Canada, nothing is as simple and straightforward as it seems. “In our experience,” he says, “the biggest pitfalls inherent in flawed capacity planning are a propensity to use historical performance as a baseline, coupled with unrealistic cost assumptions. These can lead to false and unachievable expectations. And, the most serious shortcoming of all, not making a serious attempt at a thorough plan because of the perception that it is too much work for too little benefit.”

“Nothing could be further from the truth”, says Carrier. “A well thought out and executed capacity plan is a lot of work, but these plans have often been proven to be almost as valuable an asset as what’s in the ground. Mining engineers, in their zeal to keep even marginal operations open, often fail to see the obvious - that it’s just as important what you put into a mine as what you get out of it.”

In summary, says Korpela, “more detailed and diligent up-front capacity planning is the key to profitable production plan attainment.”



The Promise of Automation



Editor's Note: This interview with USCCG EVP David Gustovich was conducted by the editor of Refrigerated & Frozen Foods and recently published therein.

R&FF: What labor savings are most often overlooked?

Gustovich: Sometimes companies that have invested millions of dollars in capital improvements to minimize or eliminate labor, forget that even within highly automated processes there are still hidden labor costs.

For example, if you have assets converting raw material into finished product that are under-performing relative to their theoretical capacity, the labor that supports the process can be under-utilized. Therefore, you have a hidden cost of under-absorbing those labor costs against the pounds or units coming out of the process that has been automated.

Many companies have convinced themselves that, by automating their processes, they've resolved their labor cost issues, but nothing could be further from the truth.

R&FF: Which areas of operations still offer the most opportunities for automation?

Gustovich: One area is the fresh meat processing operation, starting with the kill and evisceration process and continuing through de-boning and further processing of poultry, or from the kill and slaughter, to the ultimate breakdown, of beef and pork into finished product.

Historically, variation in the size, quality and weight of incoming raw material

(birds, cattle, hogs) has made this difficult. However, efforts are underway to reduce the reliance on labor, and the next three to five years should see further automation of these processes.

R&FF: How does a company know when it's time to embrace an overall approach that's more process driven?

Gustovich: If you're seeing more waste or variation than you are satisfied with in the performance metrics you evaluate, whether financial, production or operations-based, you could be a good candidate for Lean or Six Sigma.

However, neither Lean nor Six Sigma should be considered singular events. Each represents major behavioral and cultural changes that have to be embraced from the highest to the lowest levels of an organization. Eventually, you have to get everyone in your company to think, look and act consistently with whichever approach is adopted by the company. This requires a huge commitment on management's part in time and energy, but, in the end, is almost always worth it.

We feel that both Lean and Six Sigma have almost universal applicability in the food processing industry, but for various reasons have not yet been fully understood, let alone embraced, by many of the companies that would stand to gain the most from them.

R&FF: Any last thoughts about how companies should approach cost reduction?

Gustovich: Before looking to reduce labor, I would ensure that I'm doing everything I can to get optimal yield out of incoming

raw material and, by doing so, satisfying my customers' requirements.

Next, I would look at the utilization of the assets in which I've typically invested millions of dollars to convert raw material into finished product to make sure they are performing at the level necessary to generate a fair return on investment to the company's shareholders.

Lastly, I'd focus on the reduction and control of other variable costs, including such things as packaging, supply costs and labor.

Operational Issues Poll

In its continuing efforts to reach out to the business community, USCCG is in the process of polling *Metrics* readers about the three top operational issues they face. Early results revealed multiple concerns, ranging from how to manage a Six Sigma organization and improve maintenance reliability to a need for more technical training.

The one key issue that cropped up most frequently continued to be lowering production costs.

To learn more about how USCCG has helped many companies in a broad range of industries with these concerns and others, visit their web site at www.usccg.com, where information is located under the headings *Metrics* and *Case Histories*.



Good Works

ConAgra and KraftMaid Help Kids

Reaching beyond their own corporate halls, KraftMaid Cabinetry and ConAgra Foods are just two of USCCG's clients that extend helping hands to the community at large. Appropriately, both these companies do their good works in the kitchen.

KraftMaid has joined hands with the Give Kids the World Village at the Walt Disney Resort near Orlando, Florida, to help give families of terminally ill children a comfortable way to enjoy a Disney vacation. The company donated enough cabinets, including some specifically designed for wheelchair accessibility, for 42 new villas. Give Kids the World has hosted more than 45,000 families from all 50 states and more than 45 countries.

Three years ago ConAgra Foods CEO Bruce Rohde established the Feeding Children Better Foundation to help

combat child hunger in America and has made the effort the company's top philanthropic goal. According to a recent article in Delta Airlines' *Sky* magazine, Mr. Rohde said of children's hunger, "It's a hidden issue in this country – you can't always tell a child is hungry by the way he or she looks." The U.S. Department of Agriculture estimates that some 13 million American kids are affected by hunger every year.

"Kids can't concentrate if they're hungry. They can't learn or study effectively," Mr. Rohde was quoted in the article.

So far, the foundation, reports *Sky*, has spent \$3 million opening 100 Kids Café after-school meal programs, purchased 70 trucks for food banks,

developed a public service campaign, established an informational web site (www.feedingchildrenbetter.org) and donated millions of pounds of food to feed hungry children. In addition, thousands of ConAgra employees are personally donating their time and money to fight child hunger in their communities.

In a recent interview, Mr. Rohde added, "I've learned in business that nothing happens until someone makes it happen. We can cause things to happen that will begin to solve the problem of child hunger in this country. But we can't do this alone, and we don't want to do it alone. We have room on our team for more people, more organizations, more donations, more help for hungry kids and hungry people."

USCCG Presents at Pulp & Paper Seminar

USCCG's world class maintenance team was among the solution providers presenting at the Mill Solution Guide and Tours' regional business seminar for pulp and paper executives. The event was held in Three Rivers, Quebec, in late April. Personnel from mills located in eastern Canada were on hand to explore solutions to the

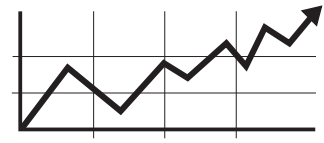
most common and/or serious operating problems they face.

Dean Carrier, operations manager for USCCG's pulp and paper practice, conducted a mini-seminar on world class maintenance management, which focused specifically on eliminating scheduled maintenance overruns. For more information

on how USCCG can help mills improve machine uptime, speed and throughput; reduce chemical and kraft usage; raise quality; and adopt world class maintenance management practices, contact USCCG Executive Vice President Jack Korpela or Mr. Carrier at 905-673-2600.



Progress Report



Lisa Rodriguez Joins Tampa Staff



Lisa Rodriguez has joined USC Consulting Group's Tampa staff as an administrative assistant. Her responsibilities will include supporting both opera-

tions and field sales personnel. She was most recently with Ampacet Corporation, Tarrytown, NY, where she was accounts payable coordinator. She has held similar posts at Tannenbaum Helpert Syracuse & Hirschtritt; Bondy & Schloss, LLP; Royal Prudential Industries; PDR Productions;

and the New York Compensation Rating Board, all in New York City.

Ms. Rodriguez attended New York's Lehman College, where she majored in business.

USCCG Bolsters Six Sigma Team



Frank J. Esposto, Ph.D., has joined USCCG's Six Sigma practice. As a Master Black Belt, he will be responsible for organizing and leading Six Sigma

engagements for the process improvement

firm's diverse group of clients. He will be based in the Toronto office.

Dr. Esposto has held senior positions focusing on productivity improvement in a variety of organizations, including Magna Corporation's Intier Group based in Ontario. His experience also includes a stint as a business development consultant serving the automotive parts industry.

He holds a doctorate degree in materials science and chemistry from the University of Western Ontario, London, Ontario. He also holds a masters degree in the same field from McMaster University, Hamilton, Ontario, and a bachelor of science degree in chemistry from the University of Windsor.

Bombardier Gives USCCG Thumbs Up

Bombardier gives thumbs up to USCCG's proposal to streamline maintenance practices and systems at its NATO Flight Training Facility in Moose Jaw, Saskatchewan. John Hannan, USCCG regional manager/analyst, shown here in the cockpit of a British Aerospace Hawk 100 at the client's headquarters, reports that the engagement is proceeding according to plan.





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