

# **Innovative, agile, lean, smart manufacturing techniques**

By Wayne Lundberg, CMfgE

Native Americans some four thousand years ago made thimble sized molded clay monster heads, one by one, and put them over corn seeds to scare off the birds. Each head was carefully crafted and must have taken a lot of time. Then somebody had a brilliant idea and using a hinged clamshell created a mold from the most frightful figurine at hand. This one person then produced the equivalent of 20 people, releasing the number of sculptors to pursue more interesting and challenging activities such as dance, music, painting, building and politics.

Genghis Khan is said to have sent recruiting flyers beyond Mongolia, into mainland China. Flyers printed with removable type in use since somewhere around the eighth century AD.

When Guttenberg cranked down on the first page of the Guttenberg Bible he put thousands of friars out of work; people who had done nothing but copy bible after bible on a never-ending treadmill. Friars who then moved into painting, gardening, wine-making, singing and much more interesting projects such as inventing the iron maiden, the rack and so forth.

Innovative manufacturing is the term we use to solicit support for our efforts in creating strategic breakthroughs in the process of converting raw materials into finished products. Solicit because in today's ever-changing smorgasbord of technology, our decision-makers are flooded with requests from every possible discipline, asking for funds, for the resources and the support to implement the latest and greatest profit-making or cost-reduction tool.

Think about it; you are the CEO of a reasonably efficient enterprise. You are being pressured from your quality group and marketing to implement ISO9000 and you pale at the thought of such a huge investment with only a guess as to the touted results. You have a two page document on your desk from accounting which claims that an investment of one point million for an ERP system will generate net savings of half a million every year for the next ten years. But on airplane rides you hear from other CEOs that these ROIs may be exaggerated... and who knows which platform to go with? Microsoft? Unix? Linux? Then you get an urgent call from your human resources director asking for a half our of your time to give you the latest presentation on just how the new training proposal will produce incredible benefits to the company. Lastly here comes a bushy tailed guy with grease under his fingernails asking for

thirty thousand dollars for a fourth axis for the Fadal with the promise it will pay for itself with two jobs, in two weeks!

Everybody wants resources!

Everybody claims instant paybacks and huge profits.

For those of us in manufacturing we must learn not only how to apply the best technology, but to be able to show an incredible and totally believable positive result from the investment. And this is impossible when we talk about innovation. By definition, innovation deals with the unknown. Most decision-makers will look at the risk factor of any new idea against simply doing it in China and will select the one with the least risk, not the greatest possible advantage.

If we can recognize this simple truth, we stand a fair chance of doing battle and winning an occasional victory. Napoleon said it so well: "Victory is in knowing your enemy."

Innovators have one incredibly powerful weapon. There is no greater force on the face of the earth than the power of the inventor. A real innovator is a person who puts all at risk in order to see their idea come true. Which means that today's innovators wake each morning with the full expectation of being fired that day. If they survive that day, they sigh with relief only to wake the next morning with the same risk. Being an innovator is not for the weak or meek.

The challenge is in channeling this energy toward the objective in such a way as to make the idea come to life without losing your job and without getting in too many people's way.

The first question you must ask: Is this environment tolerant of innovation, risk-taking, experimentation, learning from past mistakes? Is there a REAL suggestion box or system where ideas can be moved up the chain of command without the need for tactics your supervisors may consider insubordinate?

Assuming you have certain latitude in bringing about innovation there are eight steps in the process. Briefly, making lists of observations of problems and opportunities, discovering the one with the greatest potential payback and selling the idea, managing the project, using milestones to keep the project on track, develop and implement measurements, ribbon cutting, rewards and acknowledgments, discipline the new process for others to use as standard operating procedures.

Each step will be fully explored through case studies and examples over the following eight weeks. Each phase will contain a suggested assignment which you may wish to share with others and to which I will respond with comments and suggestions as though we were in a seminar. All of this at no cost nor obligation. My reward will be in helping you succeed and your sharing this knowledge with as many people as you can.

Let me start