LEAN MANAGEMENT JOURNAL

Issue 7 Volume 2 | September 2012 | www.leanmj.com

MOVING AS ONE

Exploring the role and characteristics of good leadership

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Developing leaders at Toyota: *Jeffrey Liker*, Professor at the University of Michigan, explains what real lean leadership is and how Toyota develops its people.

Do it yourself!: Does self-management work? *Joseph Ricciardelli*, director of Tecla Consulting, looks at how (and if) a leaderless company can function.

Managing maintenance: In this article, *Ian Tindle* and *Peter Watkins* talk about a new approach to maintenance that GKN's Rockford plant in Illinois successfully adopted.

A chat with Toyota: In our interview, Mark Adams, Vice President of purchasing at Toyota Europe, talks about automotive supply chain in UK and Europe and explains how Toyota recovered from the recall crisis and, later, the tsunami in Japan.

Winning Shingo bronze: *Noel Hennessy*, continuous improvement Director at Lake Region Medical, shares with LMJ the company's model for standard work, which played a big role in LRM achieving a Shingo Accredition Bronze Medallion.

Coming clean: *Sandra Cadjenovic* shares the most recent progress in SCGM's continuous improvement programme in this month's Lean Diary

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The *Lean Management Journal* is supported by the Lean Enterprise Research Centre, Cardiff Business School

Coming clean

SCGM's CEO, *Sandra Cadjenovic*, gives LMJ an account of the progress the company has made in its lean programme over the last month, starting with some serious tiding up of the machines.

Dear readers,

Since you last heard from us there have been a lot of new developments. We learned a great deal of lean "secrets" that we would like to share with you. We are sustaining lean safety changes; autonomous management activities have kicked off; on lean quality implementation and cost deployment threshold we are now standing on steady feet.

AUTONOMOUS MANAGEMENT

As you may remember, we have introduced the next and, for SCGM as a manufacturer, core pillar: autonomous management. We set ourselves the aim to reach zero breakdowns and a point when operators will maintain their equipment independently.

Our four-member AM team has worked diligently ever since, thoroughly planning the actions we need to perform. The first moves regarded the choice of model machines. Because our team members belong to two separate facilities, it made sense for us to increase the number of model machines. Hence, TM 1000/300 from the injection molding department and CNC MAHO 6 from the tool shop have been chosen.

The first step in AM activities is cleaning to ensure the equipment can perform operations properly, where "cleaning" means more than simply polishing up the exterior; it implies a full inspection of the equipment through the removal of years' worth of accumulated grime on every part of the machines, which would expose problems.

And so it did. During the initial cleaning, our operators were very thorough, opening covers and lids, emptying reservoirs, touching parts they had never put their hands on before, in order to see beyond functional breakdowns and abnormalities. We also see this as a way for them to become more equipment conscious. They checked for *static* problems like dirt, leaking, warping, tilting, missing parts, rust; and *dynamic* problems, like vibrations, unusual sounds and foul smell.

> "Some of the less complicated issues (grime, grease, missing parts) were fixed on the spot, while others were flagged up with yellow tags, so that they are easily seen and people remember to deal with them"

Some of the less complicated issues (grime, grease, missing parts) were fixed on the spot, while others were flagged up with yellow tags, so that they are easily seen and people remember to deal with them. Our next job is removing the tags, one by one. The AM team is drawing up plans for those problems that cannot be addressed immediately. By using the 5W+1H approach, we will track defects, get to the very core of problems and tackle the root causes.

What about the operators? At first they were reluctant to "clean again", but in the end they were pleased with themselves, realising they have identified problems nobody had identified before. They are also happy they have become the inspectors of their own equipment.

LEAN QUALITY CONTROL

The problems causing most headaches in SCGM, for anyone from top level executives down to shop floor workers, are those related to quality. Everybody experiences them: operators when they tell the quality department about scraps; the quality department when it informs the customer of an issue; customers when they realise that, due to faulty parts, they won't receive their order on time and in full; the finance department when it calculates losses; the owners when they see the figures and deal with complaints.

The problem is that SCGM, operating according to the "old way", was only controlling the final parts, dividing them between bad and good, and sending the good ones to the customer. What we were left with were scraps, which remain and keep reappearing in each and every process. Well, I have to admit that we would just shrug our shoulders, accepting this as a normal part of the production process.

Only after an explanation from our consultant did we realise it is not a normal part of the production process, and that it cannot be. Instead of product control, with lean quality we will start controlling the process, acting on the spot to find the root cause of a problem and eliminate it. Our aim is to have zero-defect products.

TAGGED PROBLEM	PROBLEM DESCRIPTION
	Inflexible cooling liquid and air pipe
	Oil leakage
	"T" slots collect swarf and make the cleaning difficult
	Broken hinge
	"T" slots collect swarf and make the cleaning difficult
	Missing light bulb

As with every pillar, we started by analysing the current situation. This time, we did by using a lean quality tool called QA (quality assurance) matrix. We are now in the process of gathering data and deploying defects, scraps and complaints, via the QA matrix, in order to:

- analyse the origin of non-conformities;
- define quality problems we encounter during our analysis;
- prioritise which process phase to focus on to eliminate the sources of product defects and put in order according to frequency, cost, level of gravity;
- deploy defects on 4M parts, respectively to the possible causes: **M**an, **M**achine, **M**ethod, **M**aterial.

Once we have developed a thorough stratification of the sources of problems, we will embark on problem solving. From the QA matrix we will prioritise and then choose a problem source to attack, and we will then apply the 5W+1H technique - a method for understanding a specific and (seemingly) complicated issue and identifying its root causes.

LEAN COST DEPLOYMENT

We have costs in every area of the plant, either tangible, with cash outflows directly affecting profitability, or intangible (those expenses that cannot show clear effects on business revenue). Therefore, tangible costs are of interest to us; more precisely, we are interested in how to decrease them.

That task has been taken on by our finance department, which has started making pre-calculations of what reasonable savings we can expect.

Looking into the quality assurance matrix, they found recurring problem with scrap in the process to produce plastic cables with connectors. Thus, those products were picked for the pre-calculation examples.

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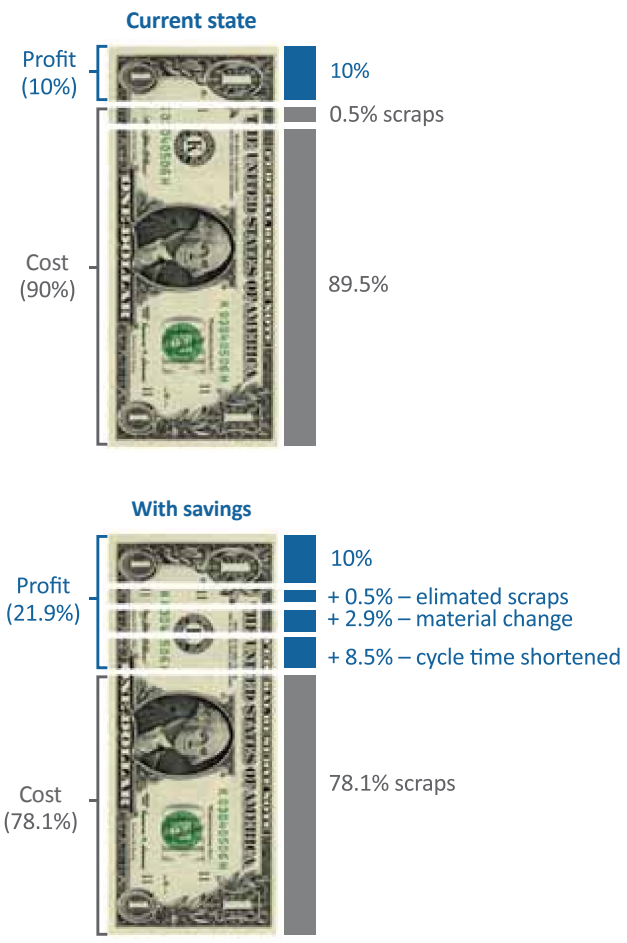
Plastic cable with connectors



Opposite you can see a graphic representation of the profits rise we would achieve if:

- **we cut the time of preparation of the tool and injection molding in half (which we consider achievable);**
- **we decreased the injection molding cycle time (the supposed cycle time is 60 seconds. We could decrease it by 20 seconds);**
- **we changed material (changing the supplier and taking cheaper material of the same quality);**
- **we substituted a person for a machine;**
- **we eliminated scraps.**

Looks great, doesn't it? That is our aim, which we'll approach in gradual steps.

You will soon hear more about the savings plans we are about to realise, about machines with zero breakdowns and maintained by operators, about a quality department with no claims, defects and scraps.