**Reducing Changeover Times**

Your printing business relies on printing presses, die cut machines, etc. to generate revenue for the company. Are you optimizing the available time on these machines or are they run sub-optimally and capacity is added by buying another machine? Knowing where you lose capacity and how much you lose on a daily, weekly, monthly basis can be very eye opening. Those machines might generate revenue or net cash flow in excess of $250 or more per hour and yet companies frequently allow capacity to be wasted or lost.

One of the biggest reasons for lost capacity is the time it takes to change from one job to another on the same machine. Depending on the press/machine, changeover times can be around 15-20 minutes if you work at it. However, many companies focus on cost, so they have the machine operator do the changeover. Or if they could hire a changeover assistant, they don’t because that person would be classified as indirect labor and added expense, and those are bad.

If you have a changeover process that takes 150 minutes (2 ½ hours) but it could take 30 minutes, you lose 120 minutes per changeover. If you changeover 7 times per week, that is 14 hours lost. Per machine. Four machines, that is 56 hours per week. $250 per hour is $14,000 cash flow per week. Almost $750,000 per year. There is your Lamborghini. You should do the math for your own company. Not only do you lose the cash flow opportunity, but probably are paying on a loan for the machine and you might also be paying for extra labor to run the machine/press, that you wouldn’t have needed to buy if you ran the ones that you already had more effectively.

**Changeover Reduction Analysis**

First, you need to list out the primary activities that are done to complete the changeover. Start the list of activities when stopping the machine on the job that is completed and listing activities through *sustained* running on the next job. Don’t micro-analyze these activities. I once saw a listing of changeover activities that had about 400 steps long for a 2-hour changeover – so the average changeover step on the list was 18 seconds long. Way too much detail so it takes too long to put this list together and when it is done it has way to much data to analyze effectively.

Once you have a listing of the activities, break them into those steps into two categories:

* Those activities that can be done while the machine is running (such as moving a screen or print media into the press area)
* Those that can only be done while the machine is off (like changing ink)

List out the activities that can be done while that machine is running, and you will see that most of these are preparation steps that need to be well coordinated. The goal with these is to make sure they all get done and probably assign a person to make sure that happens, but not the machine operator. They have to run the machine. Use a checklist to make sure you are doing everything that you can and have accounted for everything. Assign responsibilities for each step on the list and the time at which the step will be done in advance of the changeover itself.

The next set of steps are those that can only be done while the machine is not running product. These steps you want to become very efficient at and have high quality of work, i.e., no sloppy work. There is a great example that most people are familiar with that is a changeover – and that is a pit stop for a race car. Everything about the pitstop has to do with speed and quality. That same model should apply for your machines. Highly coordinated work that is done with speed and no sacrifice on quality.

One thing that often gets in the way of speed and quality of the changeover is the added cost of having a set-up assistant or team doing these. Many people think that they save money if the operator does the changeover. If that logic makes sense, why don’t racecar drivers do all of the pit stop work? The goal isn’t to save money – it is to make money.

**Big Picture**

Each machine can be analyzed individually, but you will find that there are common steps that need to be done for each machine on every changeover. Put a list together of these common steps. Find the ones that take the longest. Improve the process for these as they get a multiple effect – longest times and happen frequently.

**Summary**

Think of opportunity and what difference it would make if each machine in your shop had 20% more capacity by improving one process - changeovers. This capacity increase equates to better cash flow, better delivery performance and more than likely, reduced expenses.

Lastly, there is a good book put out by Productivity Press called Quick Changeover for Operators that is another decent source for additional information.

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**About the Author:** Bob Krausert is the owner of STRATE***X***, a Twin Cities based firm that works nationwide. Bob is the author of the book, ***Extreme Lean***, published in 2018. Bob has worked with over 60 printing companies, mostly mid-sized companies, but also with larger companies like Jostens and Banta, now part of RR Donnelly. During his career, Bob has trained over 12,000 people at both public and private events. Bob has been working with PIM since 2010, periodically providing educational seminars for its members. Bob can be reached at stratexlean20@gmail.com or by phone at 612-743-8706. If you would like to have a specific question or topic covered in one of the articles, feel free to make the suggestion.